



Cyberbullying and cyberhate as an overlapping phenomenon among adolescents in Estonia and Spain: Cross-cultural differences and common risk factors

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ABSTRACT

We present research conducted in the framework of the European project H2020 RAYUEALA on cybercrime and minors with the aim of analyzing the prevalence of and relationship between cyberbullying and online hate speech among adolescents in two different areas of Europe (Spain –South- and Estonia –North-).

We implemented a representative survey in the region of Madrid (Spain, $n = 682$) and Estonia ($n = 415$) with a stratified probability sampling method. We analysed frequencies together with a bivariate analysis and logistic regression.

The results show a similar general prevalence in cyberbullying victimization, but online insults were more common in Estonia and account takeover and exclusion from a group were more common in Spain. However, online insults, racism, and LGTBphobia had a higher difference in perpetration prevalence in Estonia. While common risk factors for victimization were being a female, being LGTBI, and spending more than three hours online, the leading risk factor for perpetrating was being male. Finally, there was strong overlap between being a cyberbullying and a cyberhate offender.

We suggest some potential explanations for these differences: the extent of technological implementation in the region and the time spent online, information provided in the school and at home, and culturally predominant racism and LGTBphobia. The overlap between being a cyberbullying and a cyberhate offender, the gender- and sexual orientation-related risk factors, and the regional differences in prevalence show the importance of addressing the social and cultural aspects of online violence and the importance of social inequalities and power imbalance.

1. Introduction

Adolescents in Europe have “anywhere, anytime” connectivity to the Internet. Considering that the Internet is a source for both opportunities and risks for adolescents, we aim to delve deeper into the phenomena of online violence (cyberbullying and cyberhate) and to do so from a cross-cultural (Spain-Estonia) perspective that pays special attention to socio-cultural variables. Next, we define the concept and prevalence of cyberbullying as well as the concept of cyberhate, with the main

associated risk factors.

1.1. Definitions and prevalence

Bullying refers to aggressive, intentional acts carried out by a group or an individual repeatedly (Olweus, 1993, p. 48) and has three components: it must be repetitive, must be intentional, and must involve an imbalance of power (Menesini & Salmivalli, 2017). Cyberbullying is a subset of bullying that takes place through technological devices (Slonje

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& Smith, 2008). The activities can vary from insults on social media to account takeovers or exclusion from a group. The victim may be thus living in a continuous situation of victimization (Buelga et al., 2010). As the pan-European survey EU Kids Online results showed, there is a higher proportion of minors who had been victims compared to perpetrators, with victimization ranging around 20 % (Smahel et al. 2020).

Cyberbullying can also lead to cyberhate (also known as online hate speech) which is defined as a behavior spreading attitudes devaluing others because of their characteristics, e.g. race, ethnicity, religion, gender, sexual orientation using computer technology (Hawdon et al., 2014; Hawdon et al., 2019).

1.2. Regional differences

Regarding regional differences, EU Kids Online showed strong differences between countries, with between 7 % and 40 % of adolescents reporting having been victims of online bullying (Smahel et al., 2020). Online cyberhate exposure was greater, from 21 % to 59 %, with cyberhate victimization varying between 3 % and 13 % (Machackova et al., 2020). Among the reasons described to explain those differences we find cultural, educational, technological, legislative, and socioeconomic differences (Smith et al., 2018).

Mertens and d'Haenens (2014) analysed whether Hofstede's analysis of national cultures could explain the Internet attitudes and behaviours of European parents and children and found relevant differences in parental concern about the Internet in relation to the variable high uncertainty avoidance. Specifically, in relation to Spain and Estonia, Estonia is at the extreme of countries with the lowest perception of Internet risks, and medium low uncertainty avoidance, with Spain at the opposite extreme with the highest scores on Internet risk concern and medium high uncertainty avoidance. Other differences found between Estonia and Spain were related to restrictive mediation of the internet (medium–high in Spain and low in Estonia) and Internet co-use (medium–high in Spain and low in Estonia).

1.3. The studied risk factors

Risk factors are fundamental when studying a phenomenon such as online violence as they facilitate both detection and prevention. One of the main factors influencing this kind of violence is time spent online: Sorrentino et al. (2019) found that in countries where young people spend less time online, they reported lower rates of cyberbullying. Harriman et al. (2020) showed that exposure to hate messages online was related to time spent online with results similar to cyberbullying victimization (e.g. Hinduja & Patchin, 2008; Juvonen & Gross, 2008) as well as cyberbullying perpetration (e.g. Barlett et al., 2019; Handono et al., 2019). Thus, more time spent online exposes children to more risks, such as cyberbullying and cyberhate (Harriman et al., 2020).

Although the profiles of cyberbullying victim and aggressor are poorly defined (Alonso & Romero, 2017), there are several risk factors associated with cyberbullying victimization as less open and more avoidant communication with parents (Barón et al., 2018), family conflicts and school environment (involvement, affiliation, and teacher support) (Ortega-Barón et al., 2016; and age (Moreno-Ruiz et al., 2019).

Factors related to cyberbullying perpetration include social support from friends, but also self-esteem, social support from family, attitudes towards cyberbullying (Hawdon, et al., 2019) and family environment (Estévez et al., 2019).

Moreover, cyberhate victimization has been related negatively with instructive parental mediation (Wachs et al., 2021). Perpetration is more likely to occur between those who spend more time online than average, have been victims previously, belong to a deviant youth group, and those who harbor violent or racist attitudes (Blaya & Audrin, 2019). Thus, cyberhate and cyberbullying share a general risk propensity related to higher age, more time spent online, exposure to potentially harmful online content and greater emotional problems. Individual-

based discrimination predicts cyberbullying and group-based discrimination predicts both cyberhate and cyberbullying (Bedrosova et al., 2022).

1.4. Social structure related risk factors

Some risk factors for cyberbullying are directly related to the social context and, as we will see below, potentially to cyberhate. Boys engage more in cyberbullying (Li, 2007), are more aggressive in their interactions, and do not report as much to adults as girls do (Maher, 2008). Gender differences have also been found in appearance-related cyberbullying (Berne et al., 2014) which is mostly used to hurt girls with comments focusing on their weight, being also used against boys with noting if they “look gay.” Berne and colleagues (2014) also found that girls and boys react differently to these kinds of comments with boys either acting out or not taking offense, but with girls experiencing depression and loss of self-esteem. This might be because girls rate abusive behavior more negatively (Shohoudi et al., 2019). In addition, boys gained value when possessing incriminating pictures of girls, while girls saw sharing these kinds of pictures as risky, with potential backlash (Ringrose et al; 2013). The same pressure to conform to gender expectations would, according to Dennehy (2019), encourage boys to engage in non-consensual distribution of sexual images as a way of reinforcing their masculinity among peers. Thus, gender role socialization does not only affect girls. Insults towards boys have more to do with their lack of physical ability and their sexual orientation (Hoff & Mitchell, 2009).

Together with gender, evidence also shows greater prevalence of cyber-victimization among LGBTQ students (Elipe et al., 2018; Minton, 2014; Toomey & Russell, 2016). This could be due to homophobia, which is a social prejudice based on the rejection of homosexual or bisexual people. In addition, cyberbullying often includes language, images, or symbols which involve different forms of racism (Mason & Czapski 2017). Newcomer deviance, physical deviance, and cultural deviance are related to the bullying of young migrants (Mazzone et al., 2018).

In summary, a socio-ecological approach reveals relationships between social context and cyberbullying behaviour (Cross et al., 2015). In school contexts, authoritarian and undemocratic cultures favor bullying and intolerance of diversity in peer culture (MacDonald & Swarts, 2004). In this study, we rely on Bronfenbrenner's socio-ecological theory applied to cyberbullying (Guo et al., 2021), whereby this phenomenon is affected by individual characteristics, by the immediate contexts such as the family and the school, and by macro-systemic issues such as the values and/or prejudices existing in society. Thus, in addressing cyber-violence, we must pay attention to the individual, the social environment and the cultural levels (Görzig and Machackova, 2015).

1.5. The aim of studying together cyberbullying and cyberhate

Despite the evident link between cyberbullying and sexism, racism, and LGTBphobia, research on cyberhate remains relatively scarce compared to cyberbullying. According to Fulantelli et al. (2022), cyberhate has received less academic attention, and studies that focus on one of these phenomena often fail to address the other. Therefore, one of the main objectives of this study is to explore the relationship between cyberbullying and cyberhate by analyzing their potential overlap, as well as their shared and unique risk factors.

To achieve this, we examine two representative samples collected from distinct European contexts—Estonia and Spain—allowing us to assess the impact of social environments on this form of online violence. Comparative studies using consistent methodologies across different regions remain uncommon (Smith et al., 2018) yet they are essential for drawing meaningful and fair conclusions (Brochado et al., 2017). The primary contribution of our study is thus the comparative analysis of two different geographical regions using a unified methodology to investigate two interrelated forms of online aggression.

We expect to identify key aspects influenced by socio-cultural dynamics, particularly family communication, time spent online, and awareness of internet risks. Additionally, we will examine the prevalence of different behaviors (victimization, perpetration, and witnessing), identify key risk factors, and explore the potential connection between cyberbullying and cyberhate. Ultimately, our goal is to enhance the understanding of online violence—specifically cyberbullying and hate speech—across northern and southern Europe. Through this comparison, we seek to highlight the often-overlooked social and cultural dimensions of cyberbullying (Baldry et al., 2015).

The specific research questions addressed in this study are:

1. What is the prevalence of cyberbullying and cyberhate in both Madrid and Estonia? Are there significant differences in their prevalence between the two regions?
2. Is there an association between cyberbullying and cyberhate in terms of victimization and/or perpetration?
3. What are the main risk factors for both victimization and perpetration?
4. Are there regional differences—such as family communication, school-provided information, and time spent online—that help explain at least some of the disparities between countries?

2. Methodology

The study was conducted in the framework of the European Union Horizon 2020 project RAYUELA which focuses on educating adolescents for safe internet usage and avoidance of cybercrime. We conducted an online survey with a representative sample in the autonomous community of Madrid, Spain, and in Estonia. We decided to use different population types (one from a sub-region and one from an entire country) as they are closer in number than if we had compared regions or countries (Estonia population is 1,37 millions and the region of Madrid population is 6,8 millions).

2.1. Ethical considerations

The Ethics Committee of Comillas University approved the study in Spain and the Research Ethics Committee of Tartu University approved it in Estonia. Teachers explained the project to the participants and the participants, or their parents, signed their informed consent to participate. Teachers were explicitly instructed that participation in the survey should be entirely voluntary. They were asked to inform students that they could withdraw at any time or leave as many questions unanswered as they wished. Additionally, teachers were advised to be attentive to any signs of discomfort, offering discreet support when necessary and reminding students about the school’s established support channels, available both for those personally affected by a problem and for those who had witnessed one. These guidelines were also explicitly stated in the survey text, ensuring that participation remained anonymous, voluntary, and disinterested.

2.2. Participants

Stratified probability sampling was used for sample selection, $p = q = 50\%$ value (maximum heterogeneity, maximum error allowed for the estimation 4%, confidence level of the estimate at 95%). The required number of participants was 600 for Madrid and 383 for Estonia (385.287 and 45.650 in total in the age group respectively), with the final sample exceeding both figures. The strata were formed based on public figures on school enrolment by the type of school to which the respondents belonged (public, charter, or private) in Spain, by the dominant language of the area in Estonia (Estonian or Russian), by age, and by the type (size) of the town in both samples (small, medium and large). The sample was made up of a total of 1097 participants, 682 children from Spain and 415 from Estonia. Every student in the selected courses in the

different schools who signed the informed consent was able to participate. The sociodemographic data of both samples is displayed in Table 1.

2.3. Measures

Instead of using standardized questionnaires on cyberbullying and cyberhate, we opted to develop our own ad hoc questionnaires, following the approach of other comparative prevalence studies (Mascheroni & Ólafsson, 2014). This allowed us to select the key variables relevant to our research objectives. Our primary aim was not to obtain a prevalence figure but rather to compare regions and influencing factors. The survey consisted on the one hand, of questions on the socio-demographic data of the participants (gender, age, sexual orientation and migratory background) as they have been pointed out as key risk factors for both, cyberbullying and cyberhate (Li, 2007; Elipe et al., 2018; Mazzone et al., 2018). On the other hand, we explored questions related to the amount of information provided at school and at home about online safety, the role of parents in monitoring internet activity, and general concerns about cyberbullying. As previously discussed, these aspects are closely tied to cultural factors.

Finally, when measuring cyberbullying, multiple items rather than a single item may better capture the complexity and diversity of the phenomenon, as suggested by several reviews (Sorrentino et al., 1999). This approach provides a more objective representation of young people’s experiences and helps minimize the risk of under-reporting (Betts et al., 2017). Thus, we included questions about insults on social media, offending meme or photo sharing, account takeovers, exclusion from a social group and receiving unwanted sexual photos in the last year. We followed Nocentini’s et al. (2011) categorization, which, based on Willard’s taxonomy, distinguishes between verbal, visual, impersonation, and exclusion. Additionally, we incorporated unwanted sexual content, as later highlighted by other researchers (Ehman & Gross, 2019). However, since this typology is not universally included in all classifications, we conducted analyses both with and without it to prevent potential bias in the results.

In addition, the students answered questions related to cyberhate (racism, sexism and LGTBphobia). There was a brief explanation about the meaning of the situation. For instance, for racism the question was as follows: “Have you ever been involved in a situation of racism that took place online (e.g., insulting or laughing at a person because of their accent or skin color)?”

The values of the variables were victimization (“It happened to me”), aggression (“I did it”), witnessing victimization (“I know someone who suffered”) and witnessing aggression: “I know someone who did it”. By adding the witness options, we wanted to see the true scale of the problem without the bias of having experienced it first-hand. We chose

Table 1
Sociodemographic characteristics of the Spanish and Estonian sample.

	Spanish sample		Estonian sample		Total	
	n = 682		n = 415		N = 1097	
	N	%	n	%	n	%
Gender						
Male	318	46.6	174	41.9	492	44.8
Female	308	45.2	211	50.8	519	47.3
Non-binary	21	3.1	14	3.4	35	3.1
Preferred not to say	35	5.1	7	1.7	42	3.8
Age						
12–14 years	313	45.9	130	31.3	443	40.3
15–17 years	369	54.1	275	66.3	644	58.7
Sexual orientation						
Heterosexual	515	75.5	258	62.2	773	70.4
LGTBI community	100	14.7	58	14	158	14.4
Still unclear	32	4.7	36	8.7	68	6.1
Preferred not to say	35	5.1	55	13.3	90	8.2

the preceding year as the research period for cyberbullying because it is the period most used in previous research (Brochado et al., 2017). We summarize our questions in Annex I.

2.4. Procedure

We created an online survey using Microsoft Forms, distributed it to different schools, and students answered it during school hours. The procedure followed by the researchers was the same in both countries: first, they approached the schools and explained the purpose of the study. Once the schools agreed to participate in the study (6 in Spain and 9 in Estonia), school staff shared the informed consent forms with the adolescents and guardians. Then, teachers gave those students who gave consent (or whose guardians gave consent) an online survey via Microsoft Forms for completion in the classroom. As the surveys were completed online, the data dump was automatic, guaranteeing data accuracy.

2.5. Statistical plan

After data collection, we exported the data and analyzed it with the IBM/SPSS statistical program version 26. We carried out a descriptive analysis of simple frequencies and performed a bivariate analysis using contingency tables and the Chi-square test, verifying the statistical significance between pairs of variables through the corrected typed residuals. We also conducted a logistic regression in order to test the different risk factors simultaneously, together with a collinearity analysis.

3. Results

3.1. There were regional differences in prevalence of victimization, aggression, and witnessing

Cyberbullying victimization prevalence was 21,8% in Madrid and 20,8% in Estonia considering at least two situations, with no significant statistical differences. Prevalence considering only one was 48, 8 in Madrid and 43,7. There were, however, significant differences (Annex II) across the concrete situations: account takeovers (Spain 15.3 %; Estonia 5.7 %), group exclusion (Spain 26.4 %; Estonia 16.7 %), and receiving insults (Spain 12.6 %; Estonia 23.3 %) (Fig. 1).

There were significant differences in cyberbullying global perpetration (within 8,7% in Madrid versus 14,9% in Estonia). These

differences in offending were also significant in racism (Spain 5.3 %; Estonia 11.3 %), and LGBTIphobia (Spain 6.6 %; Estonia 13.5 %) (Fig. 2).

The main differences in prevalence, including witnessing, are summarised in Table 2.

3.2. Victimization and offending risk factors

As there were no significant differences between regions, we described the main risk factor for the whole sample. Logistic regression was used to measure the weighted impact of risk factors. The analysis revealed the same factors taking into account both having declared oneself a victim in one situation, in at least two situations, and excluding receiving unwanted sexual pictures from the situations, which shows the consistency of the factors. The main risk factors associated with cyberbullying and cyberhate victimization were gender, sexual orientation and to spend more than 3 h online during the week. Age (being older) was significant for cyberhate situations and having a migrant background only for suffering racism. The collinearity analysis was negative, with no significant relationship between the variables. The results obtained are shown in the Table 3 below.

Regression revealed key factors associated with perpetration. Gender (being male) was a significant predictor in all categories. Time spent was significant in most of the categories, age (being older) and sexual orientation (being heterosexual) only significant in some situations, as Table 4 shows.

3.3. Overlap between CB and CH situations

We found a strong overlap between recognizing being an offender in a cyberhate situation and being an offender in a cyberbullying situation. In the case of Estonia, it was significant in almost all the situations with the exception of insulting on social media and sending unwanted sex photos and was significant for all the situations in Spain (see Annex III).

3.4. Regional differences in online time spent and risk concerns/information

a) Time spent on the Internet

Significant differences were found in the time spent online for leisure, which was higher in Estonia (mean number of hours during the week = 3.33; mean number of hours on weekends = 3.61) both on

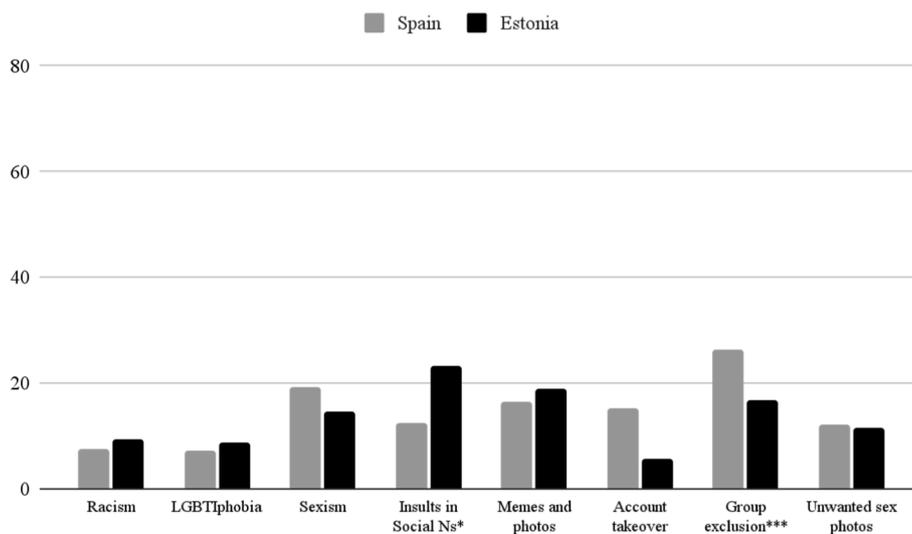


Fig. 1. Percentage of respondents who report having suffered online victimization behaviors in Spain and Estonia.

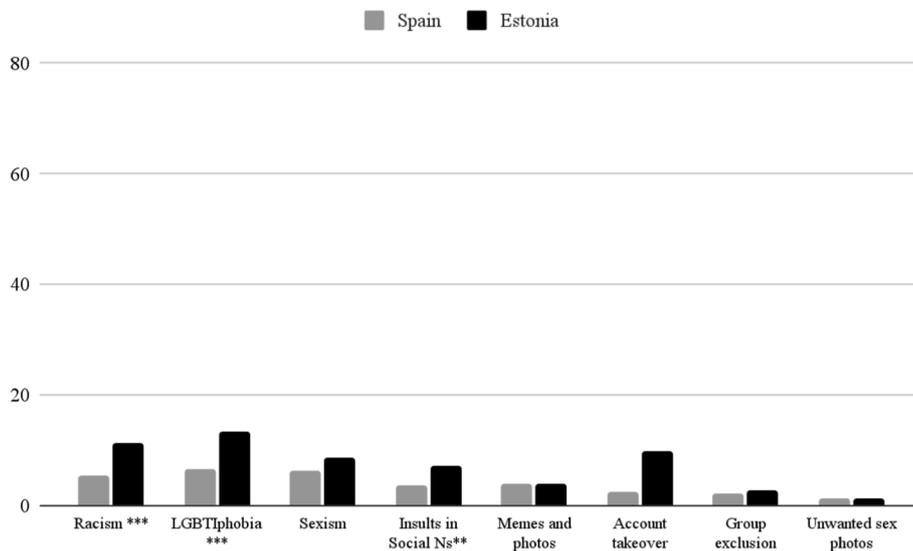


Fig. 2. Online perpetrator disclosure in Spain and Estonia.

Table 2
Regional differences in prevalence.

Category	Madrid (%)	Estonia (%)
Victimization	Account takeover (Madrid 15.3 %, Estonia 5.7 %)Group exclusion (Madrid 26.4 %, Estonia 16.7 %)	Insults (Madrid 12.6 %, Estonia 23.3 %)
Perpetration		General CB (Estonia, 14.9 % Madrid, 8,7%)Racism (Madrid 5.3 %, Estonia 11.3 %), LGTBIphobia (Madrid 6.6 %, Estonia 13.5 %)
Witnessing	Higher in insults (30.1 %), group exclusion (24.8 %) Knowing racism perpetrator (73 %), account takeover (14.5 %)	Higher in racism (40.8 %), sexism (49.9 %), LGTBIphobia (37.6 %), sexism perpetration (35.4 %), sending unwanted sexual photos (21.1 %)

weekdays (t = -6,732; p < 0.001) and weekends (t = -4.347; p < 0.001) than in Spain (mean number of hours during the week = 2.93; mean number of hours on weekends = 3.38).

b) Information received about the risks of the Internet

We found significant differences between participants on the information they had received on Internet risks. While in Spain participants who referred to have received “plenty” and “quite a lot” of information about Internet risks at home were 71.3 %; in Estonia this percentage was quite lower, 47.2 % ($\chi^2 = 72.65, p < 0.001, CC = 0.250$). We found the same trend regarding parental monitoring of what participants did on

Table 3
Victimization factors.

Variable	Cyberbullying	Racism	LGTBIfobia	Sexism
Time spent	More than 3 h 0.125 (0.040) [0.002]	-0.007 (0.021) [0.738]	More than 3 h **0.039 (0.019) [0.041]**	0.042 (0.031) [0.181]
Age	0.052 (0.039) [0.187]	Older **0.049 (0.020) [0.017]**	Older **0.053 (0.018) [0.004]**	Older **0.072 (0.030) [0.019]**
Gender	Female **0.184 (0.041) [<0.001]**	-0.028 (0.021) [0.184]	-0.008 (0.019) [0.686]	Female **0.163 (0.032) [<0.001]**
Sexual orientation	Non heterosexual **0.115 (0.053) [0.030]**	Non heterosex **0.077 (0.027) [0.005]**	Non heterosex. **0.242 (0.025) [<0.001]**	Non heterosexual **0.099 (0.041) [0.015]**
Migratory background	0.042 (0.047) [0.369]	Migrant back. **0.123 (0.025) [<0.001]**	0.022 (0.022) [0.322]	-0.017 (0.037) [0.643]

the Internet “plenty” and “quite a lot” (Spain 25.8 %; Estonia 9.4 %; $\chi^2 = 52.02, p < 0.001, CC = 0.214$).

In terms of information received at school, Spanish participants also reported receiving “plenty” and “quite a lot” of information, more than Estonian participants (Spain 69.9 %; Estonia 56.3 %; $\chi^2 = 52.02, p < 0.001, CC = 0.214$). Similarly, participants in Spain considered that more information about the risks of the Internet would be “plenty” and “quite a lot” useful, to a greater extent than participants in Estonia (Spain 50.9 %; Estonia 27.3 %; $\chi^2 = 69.78, p < 0.001, CC = 0.246$).

c) Perceived risk of the Internet

In relation to the importance attached by young people to different Internet risks, we found that there were differences between young people in Spain and Estonia, with Spanish participants showing greater concern about Internet risks. Specifically, Spanish participants responded that they were “very” concerned (answering 5 on a scale from 1 to 5 where 1 = I’m not worried- and 5 = I am very worried) about the dissemination of personal or intimate content without permission (Spain 66.1 %; Estonia 37.6 %; $\chi^2 = 113.74, p < 0.001, CC = 0.308$), online grooming, (Spain 61.1 %; Estonia 36.9 %; $\chi^2 = 80.61, p < 0.001, CC = .263$), cyberbullying (Spain 50.2 %; Estonia 20.6 %; $\chi^2 = 124.13, p < 0.001, CC = 0.320$) and identity or password theft (Spain 62.6 %; Estonia 37.6 %; $\chi^2 = 85.28, p < 0.001, CC = 0.270$).

4. Discussion

Global figures of prevalence of online violence are hard to establish as different studies use different methodologies (Brochado et al., 2017). In previous research, cyberbullying victimization rates range between

Table 4
Offending factors.

Variable	CB	Racism	LGBTBIfhobia	Sexism
Time spent	More than 3 h 0.087 (0.022) [<0.001]	More than 3 h 0.041 (0.018) [0.025]	More than 3 h 0.055 (0.020) [0.007]	0.023 (0.020) [0.247]
Age	0.023 (0.022) [0.282]	0.027 (0.018) [0.121]	Older 0.062 (0.020) [0.002]	0.036 (0.019) [0.066]
Gender	Male -0.071 (0.022) [0.002]	Male -0.106 (0.018) [<0.001]	Male -0.102 (0.020) [<0.001]	Male -0.103 (0.020) [<0.001]
Sexual orientation	Heterosexual 0.058 (0.029) [0.047]	0.031 (0.024) [0.192]	0.049 (0.026) [0.064]	0.039 (0.026) [0.136]
Migratory background	0.018 (0.026) [0.483]	0.011 (0.021) [0.607]	0.037 (0.024) [0.115]	0.026 (0.023) [0.258]

2.8–31.5 % for cybervictimization, between 3.0–30.6 % for cyber-perpetration, and between 13.0–53.1 % for cyber-bystanding. Meta-analysis-pooled prevalence showed rates of 9.62 % and 11.91 % for cybervictimization and cyber-perpetration, respectively (Henares-Montiel et al., 2022). Our sample shows similar figures for most situations. The most common situations would be receiving insults online and being excluded from a group. Less frequent are sharing memes and photos, account takeover and receiving unwanted sexual photos. Perpetration rates were much less frequent for all situations.

Regarding online hate speech, although victimization and perpetration prevalence was lower than in cyberbullying situations, bystanders’ rates were much higher (between 40 % and /3%) which shows the relevance of this kind of violence. As in the case of cyberbullying, victimization rates were higher than perpetration rates, which might reflect a different reality, but also a reporting bias explained by the facts that victims tend to disclose their experience more than aggressors, as aggression is easier to hide, and the perpetrator might also fear punishment (Brochado et al., 2017).

4.1. Regional differences in prevalence

In general terms, there is a significantly stronger prevalence of cyberhate in Estonia, especially through a greater recognition of online aggression in racism and LGBTBIfhobia, but also in witnessing of victimization (in racism and sexism) and witnessing of aggression (in LGBTBIfhobia and sexism). Only witnessing online racist aggression was greater in Spain. Cyberbullying perpetration prevalence was also greater in Estonia. The overall prevalence of cyberbullying victimization was similar, although with differences by type, as we shall see below.

Although, as mentioned above, comparison between studies is difficult due to different questions, situations, and time frames, among others methodological differences, our results are consistent with others that have shown Spain as a low cyberbullying victimization country (Athanasidou et al., 2018; Henares-Montiel et al., 2022), and Estonia as one of the highest in another study (Livingstone et al., 2011). Some of the factors we may consider are the differences in technological implementation and the time spent online, the parental and school provided information and mediation, and other general cultural factors.

Regarding technological implementation, Estonia is known for their advanced digital state with e-residency program, swift dealing with the state via e-services (e.g. e-signing, e-banking). Recent studies in digital literacy show that Estonian adolescents are well equipped with digital devices, their digital skills are highly advanced communications skills, however, the skills of searching and processing information need development (Kalmus et al., 2022).

Although studies estimate that between 3.7 % and 9.9 % of the Spanish adolescents and young adults have problematic or excessive Internet use (Carbonell et al., 2012; Garcia-Oliva & Piqueras, 2016), according to our results the prevalence of time spent by young people on the Internet was lower than in Estonia, both on weekdays and weekends. This fact, which could be related to different technology implementation and issues such as the weather, which affect the amount of time spent outdoors, is a risk factor as the greater connectivity to the Internet and

the increased social network use involves greater risk of cyberbullying (Livingstone et al., 2011). In addition, different digital literacy could be behind the fact that the most frequent form of cyberbullying (online insults) is more frequent in Estonia for both aggression and victimization, while account takeover is more common (probably due to lower digital literacy) in Spanish victimization.

Parental supervision of what young people do online is also particularly important. The cross-national study EU Kids Online found parental monitoring to be a protective factor for online risks including cyberbullying (Livingstone et al., 2011). Our results found significant differences in parental supervision between Spain and Estonia, with a higher proportion of Spanish participants reporting more parental supervision. Parents’ selection of strategies depends on cultural values and whether they belong to individualistic or collectivist societies (Kirwil, 2009), so we can assume that in more collectivistic cultures, such as Spain, parental monitoring and educating children about risk is greater, as our results show. Although previous studies have shown that the location of the computer or restrictive parental mediation, such as time use, are not as effective as parents’ conversations on the nature of websites, their content, and their possible risks (Mesch, 2009), in our study figures are greater in Spain for both monitoring and information provided. The more collectivist nature of Spanish society could also explain why more participants in this country report being victims of group exclusion, as the sense of belonging is more important in Spanish culture.

Finally, considering that the stronger differences are related to hate speech, we should pay special attention to the cultural differences that must exist especially in terms of racism and LGBTBIfhobia. On the one hand, Spain is a remarkably open country regarding LGBTI community member rights: it was one of the first countries in Europe who approved the gay marriage (in 2005, compared to 2024 in Estonia) and every year it hosts the most crowded European gay pride parade. Regarding racism, considering that immigration in Spain is a relatively recent phenomenon, prevalence of racist attitudes is lower than in the neighboring countries both historically and recently (Kumar & Faures, 2021).

On the other hand, Estonia is a country that has experienced turbulent societal transitions in the last 30 years from the collapse of the Soviet Union, creating societal challenges from unhappiness with the transitions to questions related to insufficient integration of minorities in the society (Lauristin & Vihalemm, 2011). As recent assessments on hate speech in Estonia indicate, “hate speech falling within criminal law is very limited and criminal action is rarely taken” (Grossthal & Vähi, 2022, p.2). The same report indicates that gender and sexual orientation, nationality, ethnicity, and race have been regular and systematic targets for hate speech in Estonia in previous years, with some political parties being involved in the spread of hateful content (Grossthal & Vähi, 2022).

4.2. Common risk factors

Another significant result is that some risk factors appear in both Spain and Estonia, both for being a victim and for being an aggressor, which suggests a solid trend. Victimization risk factors for some of the

different situations of online hate speech and cyberbullying are gender (being female), sexual orientation (belonging to the LGBTBI community) and time spent online (more than 3 h). Similar factors have been found before (Barlett & Coyne, 2015; Elipe et al., 2018; Sorrentino et al., 2019). As discussed in the introduction, bullying and cyberbullying are inextricably linked to the social structure and reproduce its inequality (Hong et al., 2018). Peer violence both reflects and reinforces prescribed gender roles through insults that indicate a lack of conformity to ideal masculinity and femininity, including heteronormativity (Pascoe, 2013; Thornberg, 2011).

In a similar vein, males recognized to a greater extent having been aggressors of both the different forms of cyberhate studied (racism, sexism, and LGBTIphobia) and some forms of cyberbullying, as previously found (Castellanos et al., 2023). This trend shows how discriminatory behaviors function as a pattern of masculinity affirmation during youth (Dueñas-Cid et al., 2016).

Thus, across this study, we have found that the main victimisation factors for receiving online hate speech are also the main factors for suffering cyberbullying: being a woman, a migrant, and/or having non-heterosexual sexual orientation. And, on the other hand, being a heterosexual man is a risk factor for being the perpetrator of aggression. Thus, online violence shows the power relationships and inequalities that shape the online socialisation of adolescents.

The overlapping between cyberbullying and online hate speech aggression both in Spain and Estonia shows how although cyberbullying is more broadly studied, and it is frequently approached as an individualistic problem, it cannot be separated from social structure and different inequalities, as with physical harassment (Hong et al., 2018). This study shows the relevance of studying cyberbullying not only from a psychological and individual point of view, but as a social phenomenon considering different elements such as gender, sexual orientation, migrant background, or social class, together with specific cultural aspects. This view is especially relevant if we consider that prevention programs rarely include these issues, which is a form of invisibilization that a deindividuation of the phenomenon could rectify.

However, the results of the research must also be understood in the light of its limitations. Firstly, although the sample size is sufficient, the percentage of the sample for certain situations, such as aggression, is limited. Secondly, as this is a self-report survey, possible biases such as social desirability must be considered, which probably explains some of the low percentage of aggressors. Thirdly, since the survey was not based on a validated scale, the prevalence figures should be interpreted with caution. The primary objective of this study was to analyze social and cultural factors from a comparative perspective rather than to present highly robust prevalence figures. Finally, although the methodology of the survey addresses the questions in a representative way, it does not provide information on the whys and wherefores or the perception of the young people, which qualitative methods do.

5. Conclusion

In conclusion, despite the methodological limitations, this study has the strength of addressing cyberbullying and cyberhate in a cross-cultural comparative way, which is difficult when comparing studies that have not followed the same methodology. Among the reasons for the higher levels of cyber aggression in Estonia are factors such as greater use of technology and more time spent online, less information and supervision both at school and at home, and a greater presence of racism and LGBTIphobia. All these elements together with the main risk factors (gender, sexual orientation, migration status and social class), and the overlap between cyberbullying and cyberhate highlight the importance of including in prevention programmes the discriminatory discourses that often accompany peer violence.

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CRediT authorship contribution statement

Dra. María Reneses: Conceptualization, Methodology, Investigation, Data curation, Supervision. **Mari-Liisa Parder:** Conceptualization, Methodology, Investigation. **María Riberas-Gutiérrez:** Methodology, Investigation, Data curation, Visualization. **Dra. Nereida Bueno-Guerra:** Conceptualization, Methodology, Investigation, Supervision.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary material

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