



The Perception of Cyberbullying by Adolescents in Rural and Urban Spain

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Abstract. Cases of bullying have become more serious from the use of information and communication technologies, especially with an immersion in social networks—creating the situation of cyberbullying. The objectives of our study are to analyze the relationship between cyber-victims and cyber-aggressors with respect to the use of Information and communication technology (ICT) and, finally, to identify the distribution by sex, type of center, and academic level of cases of cyber-bullying. The results we obtained show a significant relationship between cyber-victims and the lack of parental supervision. Men are frequent aggressors within sexual cyberbullying, while women are equally aggressors in terms of identity usurpation, ignoring or marginalizing a partner especially in urban centers with no connection to academic level. In short, prevention policies must be incorporated into the classroom with the participation of students and teachers in order to mitigate this type of behavior in schools.

Keywords: Cyberbullying · Teenagers · Internet · Perception · Rural schools

1 Introduction

School bullying, also referred to as bullying or harassment among peers, is present in all schools today. Around 200 million children and young people worldwide are bullied by their peers [1]. The most widely used definition to refer to bullying was formulated by Olweus (1999). The author [2] defines bullying as “harassment of a person who is repeatedly exposed to adverse actions for a long time by one or more people who intentionally intend to cause him/her harm with an imbalance of power between the victim and aggressor”.

The academic community distinguishes four types of harassment: physical, which corresponds to aggressive behavior against a person; verbal, which includes derogatory nicknames, insults or humiliating jokes; social, which consists of isolating and marginalizing the victim; and psychological, which includes behaviors that affect the individual’s self-esteem, creating fear and insecurity [3].

According to the National Institute of Statistics (2017) [4], 84.60% of people between the age of 16 and 74 have accessed the Internet at some point. In addition, 80% of the people use the Internet at least once a week and thus can be considered as frequent users. According to the same study, the use of new information and communication technologies is closely linked to the age of users. The rate of ICT uses and internet access of young people between 16 and 24 is 98.00%. Also, 75.30% of adolescents accesses social networks frequently. The percentage increases to 90% when we add those who connect to social networks occasionally [5]. The same author affirms that social networks are accessed by 78.50% of adolescents and 71.80% by men. A different study [6] stresses the different use of social networks according to sexes. Girls spend most of the time online communicating through social networks, while boys mainly access online video game pages.

The extension of social life to the virtual sphere carries numerous advantages and risks [7]. One of these risks is bullying, also known as the phenomenon of cyberbullying [8] which is constantly evolving. The presence of cyberbullying has increased dramatically in recent years and has triggered concern in society.

In sum, Hinduja and Patchin (2014) [9] claim that cyberattacks occur when a child, a preadolescent or adolescent, is humiliated by person on the Internet, phone, or other digital tool. The authors add that cyberattacks take place among young people without any adult being involved. Also, cyberattacks intend to harm someone. In many cases, there can be a shift in roles where the victim becomes a stalker.

The repetition of cyberattacks and the widely available digital tools can prolong damage. This can happen with just with a single action or incident. An example could be videos or photos posted on the Internet [10]. In addition to the multiple definitions, it is vital to refer to the different forms of cyberbullying that are known today.

1.1 Prevalence of Cyberbullying

Cyberbullying has become a problematic phenomenon, shared by all developed countries. However, it is difficult to state exact figures of the number of victims and aggressors that reflect the prevalence among adolescents. Over the years, the data obtained from studies widely differs [11]. The studies differ in geographical areas of reference, age (10–18 years) of participants, degree of education, research methodology, evaluation instrument, the type of behaviors studied, and the time interval considered. Another critical point for the existence of these differences is whether or not repetition is considered a necessary characteristic for cyberbullying [12].

Some other studies link cyberbullying to the use of social networks. The studies state that adolescents who make greater use of ICT are more likely to be involved in cyberbullying as victims or aggressors [13]. There should be parental supervision when children and adolescents are connected to the Internet, restricting the time spent on the Internet. On the other hand, there are studies that relate to the use of social networks, in which adolescents who adhere to the use of ICT tend to be more likely to become aggressors [14]. In relation to these tenders, parental supervision lasts at the time of connection to the Internet, which is currently centered on the time restriction [15].

In order to carry out more effective prevention of cyberbullying, it is critical to consider the variable of geography and rural and urban areas play a role in the discussion

of cyberbullying. Few studies have taken this point into account. The one carried out by the Ombudsman-UNICEF (2007) [16] shows that no significant differences have been found between rural and urban areas, neither in traditional bullying nor in cyberbullying. It contradicts the studies on bullying reporting that violent behavior is more common in urban areas than in rural environments [17]. Basically, the same document also indicates that students from schools located in rural settings receive significantly fewer cyberattacks than those located in urban settings.

In this sense, various reasons explain the difference and refer both to the environment and the characteristics of the areas. In the first place, there would be the impersonality that characterizes urban environments, which favors anonymity and lack of empathy, while rural environment favors prosocial attitudes [18]. In addition, the forms of leisure activities of adolescents can influence cyberbullying behaviors, such as the consumption of designer drugs [19], which are more linked to urban settings. On the other hand, rural areas are characterized by having fewer students than urban areas allowing teachers to pay more individual attention to both students and their families [20].

2 Methodology

The paper's main objective is to study the phenomenon of cyberbullying in students of third and fourth grade of Compulsory Secondary Education, making a comparison between rural and urban areas in the province of Lugo, Galicia, Spain. The specific objectives were established:

1. Analyze the relationship of cyber victims regarding ICT use.
2. Evaluate the relationship between cyberbullies regarding the use of ICT.
3. Identify the distribution by sex, area and academic level of cyberbullying cases.

The participants in this study are third and fourth-year students from two secondary schools in Lugo (Spain), one located in an urban area and the other in a rural area. The selection of the schools enables us to compare the results, despite the difference in the number of students since rural schools have a smaller number of students.

The total number of students surveyed was 238, of which 83 belonged to the rural school and the remaining 155 to the urban school. As previously specified, they belong to the third and fourth year of secondary and their ages are between 14 and 18, with a mean value of $\mu = 15.26$ years and a standard deviation of $\sigma = 0.81$. Regarding the distribution by sex, of the total number, 51.70% are women, and 48.30% are men, so the sample is very balanced.

When we differentiate the type of school, in the rural school, we have 39 students from the fourth grade and 44 from the third grade, whose ages are between 14 and 18 with the mean $\mu = 15.22$ years and the standard deviation $\sigma = 0.85$. Furthermore, 53.01% are women, and 46.99% are men. As for the courses, the fourth grade consists of 61.54% women and 38.46% men, and the ages are between 15 and 18 with the mean of $\mu = 15.84$ years and the standard deviation of $\sigma = 0.72$. Regarding the third-year students, 44 students aged between 14 and 15 years, with the mean $\mu = 14.14$ years, and the standard deviation $\sigma = 0.49$. Regarding the distribution by sex, 45.45% are women, and 54.55% are men.

In the urban school, 79 secondary students from the fourth year and 76 from the third year, whose ages are between 14 and 18, were surveyed, with a mean of $\mu = 15.29$ years and the standard deviation $\sigma = 0.78$. In the fourth year, 53.16% are women, and 46.84% are men, whose ages are between 15 and 18 with a mean of $\mu = 15.81$ years, the standard deviation being $\sigma = 0.68$. Regarding the third year, we have 48.68% women and 51.32% men and the age range between 14 and 15 years with a mean of $\mu = 14.75$ years and the standard deviation $\sigma = 0.44$ (Table 1).

Table 1. Distribution of participants according to grade, gender and type of school.

	Gender	Rural	Urban	Total
4th grade	Women	24	42	66
	Men	15	37	52
3rd grade	Women	20	37	57
	Men	24	39	63
Total		83	155	238

An ad hoc self-report questionnaire was created to collect the data. According to Whitney and Smith (1993) [21], it is how the best results are obtained in this type of research. The Cyberbullying questionnaire: Peer harassment screening, developed by Garaigordobil (2013), and the DAPHNE Questionnaire questionnaire by Calmaestra (2011) were used as a starting point [10].

The questionnaire is configured in five parts, and with a total of 21 items, with a reliability index calculated using Cronbach's Alpha, in the SPSS statistical analysis software, of $\alpha = 0.844$.

The first part "Student data", which consists of two items was designed to classify students according to gender and age. In order to enhance anonymity, and as recommended by the experts, the type of the school and academic year was not collected by the interviewer and thus were not included in the questionnaire.

The second part, "Internet uses", has a total of nine items, which aimed to collect data on whether the adolescent has a mobile phone and/or computer with Internet access at home, whether he/she has Internet access outside the home and from home and how that connection is made. It also includes two questions about whether they are supervised by parents when accessing the Internet at home or school. This section also includes a frequency table with a 5-level Likert scale, in which the activities carried out by adolescents on the Internet are analyzed.

First, the schools were contacted to request their collaboration in the study. A meeting was held with the management team in which the objectives of the work were reported. Then the research and the ethical criteria were approved, and the questionnaires were passed to the students in the third quarter of the 2018/2019 academic year. The students were supervised by teachers while filling in the online questionnaire. The authors of the study opted for an online version of the questionnaire as it is economically and time convenient approach to data collection.

An analysis of the data collected was carried out using the statistical analysis software SPSS. As for the coding of the data coding, the authors of the study decided to follow Calmaestra (2011) [10] and defined the severity in such a way that it is considered occasional when cyber-attacks occur at most two or three times a month, and frequently after two or three times a month. For the codification of the data disclosed, we decided to delimit the severity of the effort that is considered appropriate when the episodes are produced as close as possible to each other, and the frequency of the part the three times the month.

3 Results

This portion describes the results of the research on cyberbullying. In the first place, the frequency with which the different cyberbullying situations occur for the three roles (observer, victim and aggressor) are addressed, taking into account the variables of gender and type the school (rural or urban). Subsequently, the prevalence of bullying is analyzed according to the role played by each of the participants in this research. Also, the authors analyze the relationship with the variables of gender, type of school, academic year, hours of Internet connection, involvement in cyberbullying and the presence of parental supervision.

3.1 Cyber Victims

This section aims to analyze the frequencies with which the participants have witnessed cyberbullying in the degrees established above, taking into account the variable of gender and type of school. According to the results obtained, the most frequent victims of cyberbullying receive messages with offences or insults via mobile phones or the Internet. The percentage is 11.3%, the rate of occasional victims is 29.0%. Regarding gender, the percentage of women who are frequent victims (12.2%) is higher than that of men (10.4%), while the opposite is the case for occasional cyber victims (38.3%). -20.3%. The differences between rural and urban schools are significant, with a percentage of frequent victimization higher in the rural school (12.0% -1.9%). In comparison, the percentage of occasional victimization is higher in the urban schools (32.9%). % -21.7%).

Cyberbullying through offensive or humiliating calls has a frequent victimization rate of 3.4% and an occasional of 18.9%. The differences by sex are quite wide, with the percentage of frequent victimization higher in women (4.9% -1.8%) and the percentage of occasional victimization higher in men (28.7% -9.8%). According to the type of school, the greatest difference appears in occasional cybervictimization in which the percentage of men is 28.7% and that of women is 9.8%. The onset of median offensive or humiliating substances is an indicator of a 3.4% and occasional victimization. 18.9%. The differences between sexes are often amplified, including the percentage of victimization in women (4.9% -1.8%) and the temporary victimization in men (28.7% -9.8%). According to the type of school, the most significant difference appears in occasional cyber victimization, in which the percentage of men is 28.7%, and that of women is 9.8%.

Threatening anonymous calls have a frequent victimization rate of 3.4%, while the occasional calls rise to 18.9%. In the differentiation by sex, the percentage of men is higher, both in the occasional variant (21.7% -4.9%) and in the frequent 4.3% -2.4%). Depending on the type of school, the differences are scarce, although the values obtained are slightly higher in the urban school.

Regarding blackmail via mobile or Internet, the frequent victimization rate is 3.8%, while the occasional one is 10.5%. In the differentiation by sex, we obtain slightly higher values of women as frequent victims (4.1% -3.5%), while in occasional victimization, the percentage of men is much higher than that of women (18.3% -3, 3%). Sexual harassment through ICT has a frequent victimization rate of 0.4% and an occasional 11.8%. In the differentiation by sex, women correspond to a higher percentage in the occasional variant (19.1% -4.9%) and the frequent variant (0.9% -0.0%). The rural center has slightly higher indices in the differentiation by the school than the urban one.

The percentages of victimization of defamation through lies or rumors is 2.1% in the frequent variant and 13.5% in the occasional variant. Women suffer more frequent victimization of this type (4.9% -0.9%), while the percentage of the occasional variant is higher in men (22.8% -4.9%). The differences between rural and urban schools are minor. The theft of the password of social networks, email or blog has a percentage of 8.0% of frequent victims and 11.0% of occasional victims. It presents higher percentages of male victims, both in the frequent variant (11.4% -4.8%) and in the occasional variant (17.5% -4.9%). The percentage of frequent victims of identity theft is 2.1% and the occasional 15.1%. In the differentiation by sex, the number of male victims in May, both in the frequent slope (2.6% -1.6%) and occasional (23.5% -7.3%). Depending on the type of school, the differences are minimal.

Being ignored or marginalized in a chat, social network, or instant message application represents a percentage of frequent victims of 7.6% and occasional victims of 18.1%. The frequent victimization is higher in women (13.9%) than in men (0.9%), while the opposite occurs with occasional victimization (24.3% -12.2%). In the differentiation according to the school, the center percentages of the urban school are slightly higher in both occasional and frequent victims.

3.2 Cyberbullies

The highest rate of cyberbullies occurs again in sending insulting or offensive messages via mobile phones or the Internet, with a frequent victimization rate of 3.4% and an occasional of 24.8%. The frequent variant is greater in men (7.0% -0.0%) and the occasional one in women (27.6% -21.7%). Regarding the differentiation by the school, frequent victims have a higher percentage in urban schools (3.8% -2.4%), the same as in occasional victims (27.7% -19.3%). In the category of offensive or insulting calls, the percentage of frequent aggressors is 0.4%, and occasional ones are 8.4%. The differentiation by gender indicates that men are more frequent cyberbullies (0.9% -0.0%) and occasional (13.9% -3.3%).

The urban school has a higher percentage of both frequent (0.6% -0.0%) and occasional (9.0% -7.2%) aggressors. Threatening anonymous calls have a frequent aggressor

rate of 0.0% and occasional of 5.5%. According to gender, the percentage of occasional male aggressors is 11.3% and 0.0% of women. Depending on the type of school, occasional aggressors are 5.8% in the urban school and 4.8% in the rural school.

As for sexual harassment through mobile phones or the Internet, there are generally 0.0% frequent aggressors and 5.5% occasional. Men are the majority as occasional aggressors (10.4% -0.8%). The difference by type of school is minimal. The dissemination of photos or videos has a rate of frequent aggressors of 0.0% and an occasional 6.3%. Women are the majority as occasional aggressors (7.3% -5.2%), while the differences according to the type of school are minimal. Through lies or rumors through mobile phones or the Internet, defamation does not have aggressors in the frequent variant but the occasional variant (9.7%). The percentage of aggressors is higher in men (13.0% -6.5%) and the urban school (10.3 -8.4%).

Identity theft has only occasional aggressors in a percentage of 5.9%. All the aggressors are men with an index of 12.3%, and the differences according to the type of school are not very significant. Finally, ignoring or marginalizing a peer in a chat, social network, or instant message application has a rate of frequent aggressors of 1.3% and occasional aggressors of 16.0%. Women are the majority both in the frequent (2.4% -0.0%) and in the occasional (16.3% -15.7%) side. The percentage is also higher in the urban school for frequent (2.5% -0.0%) and occasional (17.4% -13.3%).

3.3 Cyberbullying by Gender, the School and Academic Year

The percentages of the different roles of cyberbullying presented by the participants in this research will be analyzed. In addition, the frequency of each role will be crossed with the variables of gender, type of school, academic year, hours on the Internet, presence of parental supervision and the roles played in cyberbullying by each participant in the study.

The analyzed sample presents a percentage of controls of 28.57%. Occasional victims are 22.27%, while the percentage of frequent victims rising to 24.37%. Regarding the aggressors, the occasional represent 0.84% of the sample and the frequent 0.42%. Also, the sample contains victimized aggressors, whose percentage in the occasional occurrence is 18.91% and in the frequent one, 4.62%.

The variable of the rural or urban school, a dependency relationship with involvement in cyberbullying has not been found either. The results show a very similar number of witnesses in the rural (28.9%) and the urban school (28.4%). There are more occasional and frequent victims in rural than in urban school, with percentages of 24.1% -21.3% for the occasional variant and 27.7% -22.6% for the frequent variant. Occasional aggressors are 2.4% in the rural school and non-existent in the urban school, while in the frequent variant they are 0.6% in the urban and 0.0% in the rural school. As for the victimized aggressors, they have a higher percentage in the urban school, both the occasional (21.3% -14.5%) and the frequent (5.8% -2.4%). A dependency relationship was not found with the academic year variable; again, there are differences between the third and fourth grade of secondary who participated in the survey. The number of witnesses is higher in the fourth grade, with a percentage of 30.5% compared to 26.7% in the third grade. The global number of victims is very similar in both courses/years, but in occasional

and frequent victimization, the differences are appreciated. The occasional have a higher percentage in the fourth grade (22.9% -21.7%) and the frequent in third (25.0% -23.7%).

However, we have found a significant relationship between cyberbullying and time spent connected to the Internet [$\chi^2(1) = 4,609, p < .05$]. According to the data obtained, the participants who spend less than an hour on the Internet are 100% occasional victims. Those included in the period of 1 to 2 h of connection, the percentage of witnesses is 36.3%, that of occasional victims is 37.5%, and that of frequent victims is 6.3%. There are no frequent aggressors, but 1.3% are occasional. Regarding the victimized aggressors, 13.8% are occasional and 5.0% frequent. With participants with a time range of 2 to 4 h of Internet connection, the percentage of witnesses is 24.7%, occasional victims 7.5% while frequent victims have a much higher rate than the two previous ranges, with 36.3%. We only found occasional aggressors with 1.1%.

Regarding the victimized aggressors, the percentage is also higher in both the occasional (23.7%) and the frequent (6.5%). For the most extended connection to the Internet is more than four hours, the percentage of witnesses is 28.3%. As for the victims, the occasional have a percentage of 14.0% and the frequent 33.3%. The percentage of occasional aggressors is zero, and that of frequent aggressors is 1.8%. Regarding the victimized aggressors, 21.1% are occasional and 1.8% frequent.

On the contrary, a significant link [$\chi^2(6) = 12,832, p < .05$] between the involvement in cyberbullying and parental control. The results obtained in this study reflect that in those participants who do not have parental control, 28.3% are witnesses, 25% are occasional victims and 24.3% frequent, there are only frequent aggressors with 0.7%, and within the victimized aggressors, the percentage of occasional is 15.8%, and that of frequent is 5.9%. As for those who have parental supervision, 29.8% are witnesses, 17.9% occasional victims and 25% frequent. Occasional aggressors account for 2.4%, and frequent aggressors 8%. Among the victimized aggressors, there are only occasional ones that represent 25%.

4 Conclusions

Media and the inappropriate use of technological devices and tools increase the tendency towards harassment, especially among adolescents. In this sense, it is convenient to refer to the analysis of the prevalence of cyberbullying among students of the third and fourth year of compulsory secondary education. The authors of the paper conducted research analyzing the prevalence of cyberbullying in rural and urban schools.

The research objective was to analyze the relationship between cyber victims using mobile devices and/or a computer and the involvement in cyberbullying. The results show that 63.07% of all participants claim that they are not supervised when using a mobile device or a computer when accessing the Internet. 30.9% of the participants that do not have parental have direct involvement in cyberbullying at 25.00%. The authors observe a significant association between involvement in cyberbullying and parental control, as confirmed by Leung and Lee (2012), who consider parental control as an element of cyberbullying prevention.

The study's second objective followed Álvarez-García (2010), who notes that schools located in rural areas receive significantly fewer cyber-attacks than those located in urban

areas. The percentage of participants from rural schools who experience cyberbullying is lower than in urban schools, taking into account cyber victims and victimized cyberbullies. Especially, men are frequent aggressors in sexual cyberbullying, while women are equally aggressors in terms of identity theft, or ignoring/marginalizing a partner, especially in urban schools.

The third objective of the research was to identify cyberbullying according to the distribution by gender, school, and degree of education. As for gender, the percentage of women is higher than that of men with a relatively wide difference. On the other hand, frequent victimization was highest in women, with 30.1% compared to 18.3% in men. These figures confirm research results of Estévez et al. (2011), Buelga et al. (2010), Garaigordobil and Aliri (2012), Capadocchia et al. (2013), Ortega et al. (2008) and Mateo et al., (2010). Frequent cyberbullies are common among men, with 0.9% compared to 0.0% of women, a result following other authors (Calvete et al., 2010; Finkelhor et al., 2010; Li, 2006; Estévez et al., 2011; Pelfrey and Weber, 2013; Ortega et al., 2008; Mateo et al., 2010). Victimized aggressors have a higher rate in men (7.0%) than in women (2.4%), contrasting Mishna et al. (2012). The latter confirms that the number of aggressive cyber victims is more significant in women than in men.

The limitation of the study is, in the first place, the size of the sample, which can be considered negligible, although, for an initial study, it has a relatively significant value. In this sense, the authors of the study propose extending the research to obtain broader results and conclusions that confirm or deny these initial findings.

Since the research analyzes information from adolescents, it would be interesting to contrast the data with both parents' and teachers' opinions and provide the study with a more significant adjustment to authenticity, since using a self-report questionnaire as a data collection instrument can lead to certain self-bias. Further research could aim at the causes of cyberbullying and the most effective prevention and detection measures. The authors also suggest implementing the questionnaire to different schools considering this study as the framework. Later the authors of the study could probe the opinion of the participating sample and contrast the results. In this sense, the study could be extended to other communities or geographic spaces with similar characteristics. A further study could help us establish synergies and contribute to the design of good practices that favour preventing cyberbullying behaviour or desirably the total eradication.

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