INCIDENCE AND DEMOGRAPHIC CORRELATES OF SELF-REPORTED CYBER-VICTIMIZATION AMONG ADOLESCENT RESPONDENTS

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Abstract

Cyber-victimization, understood as the suffering of aggressions through electronic media, is undoubtedly the greatest concern of socio-educational communities. The aim of this study was to assess the incidence of cyber-victimization in adolescents and to analyze the relationship between cyber-victimization and several demographic variables. We administered the Cyber-Victimization Questionnaire and an *ad hoc* demographic questionnaire to a sample of 866 Compulsive Secondary Education (CSE) students aged 12 to 16 years ($M = 13.81$, $SD = 1.25$). The data revealed a percentage of cyber-victimization of 22.18% with a greater presence of verbal-written cyber-victimization. Among the most common actions of cyber-victimization are receiving calls with the intention of annoying or making fun of the victim and sending unpleasant photos or videos through mobile phone or the Internet. Likewise, the variance and post hoc analysis show that personal (gender), family (type of family) and school variables (type of center, course, and academic record) are statistically significant risk factors in cyber-victimization. In conclusion, this study identifies relevant personal, family and school variables to help structure prevention and intervention strategies in cyber-victimization from educational communities.

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1. Introduction

Modern society is partly characterized by an increased dependency on Information Communication Technology (ICT) that has significantly changed social interaction and communication, particularly amongst adolescents (Haz, Dávila, Domínguez & Gabriela-Campuzano, 2022). Mobile phones, the Internet and social networking have become main channels of socialization. According to the Spanish National Statistics Office (Instituto Nacional de Estadística, 2017), 69.1% of young people aged 10-15 years old regularly use mobile phones. Further, nine out of ten children aged 14 years or older have their own mobile phone, and the trend is toward still younger users. Indeed, youngsters are increasingly spending more time with digital devices (Gómez-Nashiki, 2021; Ortega-Ruiz, Del Rey & Casas, 2016).

While ongoing technological developments bring with them many benefits when properly used (Del Rey, Casas & Ortega, 2018; Iqbal & Bhatti, 2020; Hartley, Bendixen, Gianoutsos & Shreve, 2020), ICT has often been used to offend, slander, assault, or incite others to do so, and this can have a substantial negative psychological, physical, and social impact on victims (Ortega-Barón, Buelga & Cava, 2016; Ovejero, Yubero, Larrañaga & Moral, 2016; Sánchez, Magaña & Telumbe, 2022). Thus, illicit uses of digital technology include (i) cyber-bullying, defined as an act of aggression by an individual or group against another person using electronic means (Calmaestra, Del Rey, Ortega & Mora-Merchán, 2010) and (ii) cyber-victimization, defined as victimizing a person by mobile phone or the Internet, regardless of the duration in time or the type of relationship between the aggressor and the victim (Álvarez-García, Dobarro & Núñez, 2015).

In general, a disproportionate use of ICT has been found to heighten social and school violence and aggravate moral damage due to its intrinsic characteristics (i.e., the ability to attack at any place or time, attack anonymously, disguise one's identity, steal another's identity, fake personal profiles, reach large audiences, and act spontaneously), and its ease of access and publication (Dans-Álvarez-de-Sotomayor & Muñoz-Carril, 2021; Buelga, Estévez, Ortega-Barón & Abu-Elbar, 2016; Gradinger, Strohmeier & Spiel, 2010). Furthermore, the risks linked to cyber-victimization appear to be increasing among all age groups and particularly among adolescents (Amado, Matos, Pessoa & Jäger, 2009; Garaigordobil, 2011; Rojo-Ramos, Ferrera-Granados, Mañanas-Iglesias & Guevara-Pérez, 2022).

Several studies on cyber-victimization have highlighted that victims show (i) a high incidence among adolescent groups (Blanco, González & Velasco, 2020; Garaigordobil & Martinez-Valderrey, 2016; Kowalski, Giumetti, Schoroeder & Lattanner, 2014; Martín, Cabré & Neri, 2019; Zych, Ortega-Ruiz & Marín-López, 2016), (ii) experience a serious impact on psychosocial wellbeing (León, Felipe, Fajardo & Gómez, 2012), (iii) exhibit poor academic performance and increased school absenteeism (Beran & Li, 2007), have a predisposition to loneliness (Ortega-Barón et al., 2016), may develop depressive and even suicidal symptomatology (Bonanno & Himel, 2013), show a higher risk of conflictive behavior (Zhou, Tang, Tian, Wei, Zhang & Morrison, 2013), exhibit low self-esteem (Extremera, Quintana-Orts, Mérida-López & Rey, 2018; Wachs, Jiskrova, Vazsonyi, Wolf & Junger, 2016), display somatization (headache, stomach-ache, diarrhea, dizziness, insomnia, changes in bodyweight), have sudden mood changes (sadness, apathy, indifference, aggressive behavior), and show sudden changes to daily routines (Ruiz, López & Rivero, 2013).

Another noteworthy aspects of cyber-victimization are how it is carried out and what types of behavior and interrelationships it transmits. For Kowalski, Limber and Agatston (2010), cyber-victimization can involve (i) insulting others, using electronic devices (short, heated exchanges between two or more people using ICT); (ii) cyber-harassment (engaging in reiterated offensive messages sent by email or posted in chats and public forums); (iii) slander (false or denigrating information regarding another person posted on websites or shared by e-mail or direct message); (iv) identity theft (impersonating a victim); (v) exposing and coaxing (revealing sensitive personal information about a victim to other people that was spontaneously posted in private by the victim or coaxed out of the victim, and circulated to other people); (vi) exclusion (excluding someone from social networks); (vii) cyber-persecution (reiterated harassing and threatening electronic messages); and (viii) happy slapping (a physical assault on video recorded on mobile phone and posted on the Internet). The most frequent cyber-victimization behaviors have been written or verbal (e-mails, chats, blogs, websites); visual (sharing, publishing, and sending photographs or videos); impersonation (identity theft or revelation of personal and sensitive information); and exclusion (deliberately isolating someone) (Nocentini, Calmaestra, Schultze-Krumbholz, Scheithauer, Ortega & Menesini, 2010). Cyber-victimization has had personal, family, school, and social repercussions for victims. Numerous studies focusing on gender (e.g., Del Rio, Bringue, Sádaba & González, 2010; Kowalski & Limber, 2007; Slonje & Smith, 2008; Sourander, Brunstein, Ikomen, Lindroos, Luntamo, Koskelainen et al., 2010; Velázquez-Reyes, 2022), have found girls to be more often exposed to cyber-victimization and boys more apt to resort to cyber-bullying.

The disproportionate increase in the use of electronic media among young people continues to be a problem in educational communities, which highlights the importance of analyzing changes in the communication process and new possibilities for relating to others (Freitas, Rappoport, Solana & Paredes,

2022; Gabarda, Cuevas, Martí, López & Rodríguez, 2022; Niederauer, Machado, Pastoriza & Cardoso, 2022). The widespread use of the internet and smartphones, as well as the increase in the speed of internet connection and easy access to these resources allows young people to use these media as a vehicle for communication, in many cases, inappropriately and, therefore, causing harmful consequences such as the emergence of cyber-victimization.

In this context, the main objective of the study was to evaluate the incidence of cyber-victimization in a sample of Spanish adolescents, and to analyze the relationships between different types of cybervictimization (written-verbal, visual, online exclusion and identity theft) and certain demographic characteristics of the victimized adolescents (gender, age, family, type of school, school environment, year of schooling and academic performance). To achieve this general purpose, the following specific objectives are proposed: (i) analyze the perception of adolescents about the presence of cybervictimization in their school environment; (ii) to know whether demographic or school characteristics present significant differences in verbal-written cybervictimization; (iii) to determine whether demographic or school characteristics present significant differences in visual cybervictimization; (iv) to identify whether demographic or school characteristics present significant differences in online exclusion; and (v) to verify whether demographic or school characteristics present significant differences in Identity theft cybervictimization. We hypothesized (HO_1) *a high incidence of cyber-victimization among Compulsory Secondary Education (CSE) students*, and (HO_2) *a significant relationship between cyber-victims and demographic variables.*

2. Research Method
2.1. Method
A non-experimental, cross-sectional and quantitative design was adopted, given that the variables of interest are not modified for their effects on others and the information is collected only once (Mousalli-Kayat, 2015). Thus, its main purpose is to obtain both descriptive data that offer us a picture of the social reality with respect to the variables of interest, as well as to be able to probe further with these same data, and to be able to reach inferential and relational-causal levels. For this purpose, a self-administered questionnaire with good and relevant psychometric properties is used for the study of the target variables.

2.2. Research Participants

The sample used was a non-probabilistic convenience sample (Hernández, Fernández-Collado & Baptista, 2014) and consisted of 866 CSE students (53.1% boys, and 46.9% girls) of eleven educational centers of the Galician Autonomous Community. Participant ages ranged from 12 -16 years ($M = 13.81$; $SD= 1.25$). A total of 53% of students had passed all their subjects, while 18.2% had failed a subject, and 28.8% had repeated a school year. In terms of family status, 65.7% lived in a two-parent family, and 34.3% lived in single-parent families. According to their year of secondary education, 26% were 1st Year CSE students, 27.8% were 2nd Year CSE, 27.3% were 3rd Year CSE, and 18.9% were 4th Year CSE. As for the type school, attended, 64.3% attended state schools, and 35.7% attended state-funded independent schools, out of which 32.9% were urban schools, and 67.1% were rural schools.

2.3. Measurement Instruments

For the present study we used an "ad hoc" demographic questionnaire through which we gathered participant respondent information regarding gender (girls, boys), age (12, 13, 14, 15, and 16 years-old), academic performance (pass, fail, repeat), family status (two-parent intact home , single-parent), school year (1st CSE, 2nd CSE, 3rd CSE, 4th CSE), type of school (state, independent) and school setting (urban, rural). Additionally, we administered the Cyber-Victimization Questionnaire in Secondary Students (Álvarez-García et al., 2015) to procure the adolescents' self-reports regarding whether they were victims of acts of aggression through the use of information and communication technology.

The Cyber-Victimization Questionnaire consisted of 26 items, each of which consisted of a statement describing an act of aggression using a mobile phone or the Internet followed by a Likert-type scale with four response options (1 = never, 2 = a few times, 3 = many times, and 4 = always). The informant was

required to indicate the frequency of victimization in the last three months for each of the situations described. This instrument has shown acceptable reliability, with an overall Cronbach Alpha of .89 (Written-verbal: α = .89; Identity theft online: α = .77; Visual: α = .77; Exclusion: α = .81).

2.4. Procedure

First, educational centers were contacted by e-mail or telephone. It was explained to the schools that wished to participate that the research was studying cyber-victimization from the perspective of the adolescent population, for which students would be asked to answer a brief questionnaire anonymously. Secondly, we administer the questionnaires to groups of CSE students in their classrooms during school hours. Instructions to complete the questionnaires were given by the same researcher in order to avoid any test administrator biases. We obtained informed consent from both schools and parents of all students, and all students volunteered to participate in the study after being reassured their data would remain anonymous and confidential in line with the Spanish Data Protections Laws. The study complied with the Ethical Code according to the Declaration of Helsinki (1975), and was approved by the Ethics Committee of the University of Vigo.

2.5. Data Analysis

First, we calculated mean scores and standard deviations on the Cyber-Victimization Questionnaire overall and for each of the item factors composing cyber-victimization. As Kolmogorov-Smirnov normality tests indicated normal data distributions, we used the F statistic in a one factor analysis of variance (ANOVA) and the Tukey's post-hoc test to determine statistically significant differences between various types of demographic descriptors of our respondent sample. We calculated the effect size (Cohen's d) and considered values between .2 and .3 a small effect, around .5 a medium effect, and higher than .8 a large effect. All statistical analyses were undertaken using the SPSS v. 23 statistical software package, and $p \leq .05$ was considered a statistically significant relationship.

3. Results

3.1. Descriptive Analysis (Percentages) of the Different Types of Cybervictimization

Initially, according to the participants' mean scores across the 26 items of the Cyber-victimization Questionnaire, we observed a low overall level of cyber-victimization within this sample (22.18%). Types of cyber-victimization were mostly written-verbal (42.8%), followed by visual identity theft (40.2%), by exclusion (34.5%), and online identity theft (33.4%). Moreover, the most frequent acts of cyber-victimization reported by CSE students were getting annoying phone calls, pretending to be another person to make fun of someone, sending unpleasant photos or videos, and being expelled from online games without justification. On the other hand, the least frequent acts of cyber-victimization were threats, creating fake profiles, happy slapping, and being freeze out of social networks (Table 1).

3.1.1. Univariate Analysis of Verbal-Written Cybervictimization According to Gender, Age, Academic Performance, Family Status, School Year, Type Center and School Setting

Subsequently, we utilized a one-way ANOVA to compare mean scores on the Cyber-victimization Questionnaire across respondent demographic variables. Self-reported written-verbal cyber-victimization (see Table 2) showed a significant main effect for gender, with girls reporting this more than boys, ($F = 7.22$, $d = .18$, $p < .01$); for age ($F = 5.14$, $p < .001$), with victimization higher for 16-year-olds than for students aged 12 ($d = .498$), 13 ($d = .483$), and 14 ($d = .375$); for academic performance ($F = 6.42$, $p < .05$), with higher scores among students repeating a grade than among students who passed ($d = .263$); for family status ($F = 8.72$, $p < .05$), with higher values from respondents in single-parent families than in two-parent families ($d = .206$); for school year ($F = 3.32$, $p < .05$), with higher scores among 4th year CSE than among 1st year CSE ($d = .317$); and for type of center ($F = 20.48$, $p < .001$) with higher scores among adolescents in state-funded independent schools than among those in state schools ($d = .318$). No significant differences were observed in relation to urban or rural school setting ($F = 2.01$, $p > .05$). The effect size of the difference was small (d between .182 and .498).

Cyber-victimization (%)	Items With Highest/Lowest Victimization Scores	% Few/Many times+Always
Written-verbal (42.8%)	I receive calls on my mobile phone, but no one answers, I suppose it's to annoy me.	48.8%
	I have been threatened in public in social networks (Twitter, Facebook…)	6.8%
Visual (40.2%)	I have been sent very unpleasant photos or videos	25.8%
	I have been hit, and the assault has been recorded and posted.	1.2%
Exclusion (34.5%)	Someone has rejected or excluded me from a team in *online* games although I haven't done anything wrong and without any justification.	21%
	They gang up on me and give me the cold shoulder (ignore me) in social networks.	7.5%
Identity theft online (33.4%)	Someone has impersonated another person to make fun of me on the Internet or by mobile phone.	15.6%
	Someone has impersonated me on Twitter, Twenty… to create a false user profile (photo, personal data) to insult or make fun of me.	2.7%

Table 1. Percentages of respondents reporting high and low cyber-victimization scores
on items within each factor of the Cyber-victimization Questionnaire

Written-Verbal		M	SD	F	p	Prevalence/Tukey	d
Gender	Girls (G)	15.07	4.01	7.22	.007	G>B	.182
	Boys (B)	14.39	3.46				
Age	12 years	14.26	3.27	5.14	.000	16>12	.498
	13 years	14.23	3.67			16>13	.483
	14 years	14.67	3.59			16>14	.375
	15 years	14.95	3.96				
	16 years	16.13	4.18				
Academic performance	Pass (P)	14.28	3.42	6.42	.002	R>P	.263
	Fail (F)	15.05	4.05				
	Repeat (R)	15.26	4.01				
Family status	Nuclear family (NF)	14.44	3.46	8.72	.003	SP>NF	.206
	Single-parent (SP)	15.23	4.18				
School year	1st CSE	14.20	3.23	3.32	.019	4ºCSE>1ºCSE	.317
	2nd CSE	14.54	3.96				
	3rd CSE	14.92	3.81				
	4th CSE	15.33	3.88				
Type of Center	State (S)	14.28	3.59	20.48	.000	I>S	.318
	Independent (I)	15.47	3.88				
School setting	Urban	14.96	4.20	2.01	.157	n.s.	-
	Rural	14.58	3.49				

Note. M = Mean; SD = Standard deviation; n.s. = non-significant

Table 2. Comparisons of Cyber-victimization Questionnaire Scores
for Demographic Subgroups: Written-Verbal Cyber-victimization

3.1.2. Univariate Analysis of Visual Cybervictimization According to Gender, Age, Academic Performance, Family Status, School Year, Type Center and School Setting

In terms of visual cyber-victimization (Table 3), significant differences were found in family status ($F = 10.55$, $p < .05$), with higher frequency in single-parent families than in nuclear families ($d = .224$); with

regard to type of school ($F = 22.08$, $p < .001$), showing higher frequency in state-funded independent than in state schools ($d = .319$); and in regard to school setting ($F = 9.19$, $p < .05$), with higher frequency in urban schools than in rural schools ($d = .213$). The effect size of the difference was small (d ranges from .213 to .319). Moreover, no significant differences were found in gender ($F = .189$, $p > .05$), age ($F=1.27$, $p > .05$), academic performance ($F = 1.26$, $p > .05$), and school year ($F = .456$, $p > .05$).

Visual		M	SD	F	p	Prevalence/Tukey	d
Gender	Girls	5.49	.93	.189	.664	n.s.	-
	Boys	5.46	.95				
Age	12 years	5.43	.82	1.27	.279	n.s.	-
	13 years	5.47	.94				
	14 years	5.44	.84				
	15 years	5.47	1.06				
	16 years	5.68	1.12				
Academic performance	Pass	5.43	.83	1.26	.281	n.s.	-
	Fail	5.55	1.07				
	Repeat	5.52	1.04				
Family status	Nuclear family (NF)	5.40	.83	10.55	.001	SP>NF	.224
	Single-parent (SP)	5.62	1.11				
School year	1st CSE	5.42	.80	.456	.713	n.s.	-
	2nd CSE	5.49	.96				
	3rd CSE	5.42	1.05				
	4th CSE	5.49	.93				
Type of Center	State (S)	5.37	.82	22.08	.000	I>S	.319
	Independent (I)	5.68	1.10				
School setting	Urban	5.62	1.13	9.19	.002	U>R	.213
	Rural	5.41	.82				

Note. M = Mean; SD = Standard deviation; n.s. = non-significant

Table 3. Comparisons of Cyber-victimization Questionnaire Scores for Demographic Subgroups: Visual cyber-victimization

3.1.3. Univariate Analysis of Online Exclusion According to Gender, Age, Academic Performance, Family Status, School Year, Type Center and School Setting

With regard to cyber-victimization involving online exclusion (Table 4), significant gender differences were revealed ($F = 6.90$, $p<.05$), being higher in boys ($d = .182$); regarding family structure ($F = 5.37$, $p < .05$), showing higher values in nuclear families ($d = .098$); regarding type of school ($F = 3.95$, $p < .05$), yielding higher scores in state-funded independent schools ($d = .285$); and with regard to school setting ($F = 4.25$, $p < .05$), with higher scores in urban schools ($d = .145$). The effect size of the difference was small (d from .089 to .285). No significant differences were found in age ($F = .588$, $p > .05$), academic performance ($F = .092$, $p > .05$), or school year ($F = .546$, $p > .05$).

3.1.4. Univariate Analysis of Identity Theft Cybervictimization According to Gender, Age, Academic Performance, Family Status, School Year, Type Center and School Setting

According to identity theft (Table 5), there were no significant differences in gender ($F = .523$, $p > .05$), age ($F = .666$, $p > .05$), school year ($F = .481$, $p > .05$), or school setting ($F = 1.74$, $p > .05$). However, significant differences were found in academic performance ($F = 3.52$, $p < .05$), with higher scores in repeating students than in those who passed ($d = .197$); regarding family status ($F = 5.99$, $p < .05$), with higher values in single-parent families ($d = .170$); and with regard to the type of school ($F = 6.10$, $p < .05$), with higher scores in state-funded independent schools ($d = .173$). The effect size of the difference was very small (d ranging from .170 to .197).

Online exclusion		M	DT	F	p	Prevalence/Tukey	d
Gender	Girls (G)	4.55	1.11	6.90	.009	B>G	.182
	Boys (B)	4.78	1.40				
Age	12 years	4.71	1.30	.588	.672	n.s.	-
	13 years	4.58	1.18				
	14 years	4.68	1.08				
	15 years	4.66	1.32				
	16 years	4.81	1.74				
Academic performance	Pass	4.65	1.20	.092	.912	n.s.	-
	Fail	4.70	1.39				
	Repeat	4.69	1.34				
Family status	Nuclear family (NF)	4.60	1.09	5.37	.021	NF>SP	.089
	Single-parent (SP)	4.48	1.56				
School year	1stCSE	4.70	1.24	.546	.651	n.s.	-
	2ndCSE	4.59	1.17				
	3rd CSE	4.67	1.19				
	4thCSE	4.75	1.56				
Type of Center	State (S)	4.61	1.20	3.95	.044	I>S	.285
	Independent (I)	4.98	1.39				
School setting	Urban	4.80	1.41	4.25	.039	U>R	.145
	Rural	4.61	1.20				

Note. M = Mean; SD = Standard deviation; n.s. = non-significant

Table 4. Comparisons of Cyber-victimization Questionnaire Scores
for Demographic Subgroups: Online exclusion

Identity theft		M	DT	F	p	Prevalence/Tukey	d
Gender	Girls	5.51	1.14	.523	.470	n.s.	-
	Boys	5.49	1.21				
Age	12 years	5.51	1.12	.666	.616	n.s.	-
	13 years	5.54	1.31				
	14 years	5.48	1.05				
	15 years	5.45	1.03				
	16 years	5.68	1.49				
Academic performance	Pass (P)	5.42	.911	3.52	.030	F>P	.197
	Fail (F)	5.67	1.55				
	Repeat (R)	5.60	1.33				
Family status	Nuclear family (NF)	5.44	1.03	5.99	.015	SP>NF	.170
	Single-parent (SP)	5.65	1.41				
School year	1st CSE	5.52	1.09	.481	.695	n.s.	-
	2nd CSE	5.58	1.35				
	3° CSE	5.50	1.15				
	4° CSE	5.45	1.05				
Type of Center	State (S)	5.44	1.09	6.10	.014	I>S	.173
	Independent (I)	5.65	1.32				
School setting	Urban	5.59	1.37	1.74	.187	n.s.	-
	Rural	5.48	1.07				

Note: M = Mean; SD = Standard deviation; n.s. = non-significant

Table 5. Comparisons of Cyber-victimization Questionnaire Scores
for Demographic Subgroups: Identity theft

4. Discussion

Cyber-victimization has become a social issue both in and out of school due to its incidence in every social sphere and time of day, as well as the serious negative impact on victims (Adorjan & Ricciardelli, 2019; Hinduja & Patchin, 2018; Neyra, 2021; Slattery, Peshak & Kern, 2019). The objective of this study was to determine the prevalence of cyber-victimization in adolescents, the incidence of the contributing factors, and their relationship with other demographic variables.

The first step was to confirm the measure instrument used in this study. The instrument obtained an acceptable reliability coefficient with a Cronbach Alpha of .89 (George & Mallery, 2003), which exceeded the original questionnaire (Cronbach Alpha = .85). Thus, the instrument can be considered reliable and valid for the evaluation of cyber-victimization (Álvarez-García et al., 2015).

Furthermore, our results failed to support the first working hypothesis, "a high degree of cyber-victimization would be expected among CSE students", as the data yielded a low level of cyber-victimization among CSE students (22.18%). These values were similar to those obtained by other researchers (Amado-Llaulli, 2022; Calvete, Orue, Estévez, Villardón & Padilla, 2010; Donoso, Rubio & Vilà, 2018; Moya & Moreta, 2022). Notwithstanding the above, the data varied according to the modality used, students admit a higher incidence of written-verbal cyber-victimization (42.8%), followed by visual cyber-victimization (40.2%), social exclusion (34.5%), and online identity (33.4%). These results are in line with previous findings from Félix, Soriano, Godoy and Sancho (2010), Bermejo-Terrones, Edita, Díaz and Meneses (2021), Loayza (2021) and Rojo-Ramos et al. (2022).

Similarly, the most common types of cyber-victimization affecting adolescents were receiving annoying calls in order to upset or mock; and the sending, posting, or sharing of harmful or false photos and videos by mobile phone or Internet (Herrera-López, Romera & Ortega-Ruiz, 2018; Orosco, Gómez, Pomasunco & Torres, 2022). On the other hand, the least frequent types of cyber-victimization were repeated threats, happy slapping, or exclusion from social networks. Therefore, in line with our findings, several studies have shown that the most frequent means of cyber-victimization were through the Internet by posting threatening and insulting messages and images (Álvarez-García, Núñez, Álvarez, Dobarro, Rodríguez & González-Castro, 2011; Álvarez-Idarraga, 2015; Buelga, Cava & Musitu, 2010; Calvete et al., 2010; Félix et al., 2010; Moretti & Herkovits, 2021).

With regard to the second hypothesis, "demographic variables would be influential in cyber-victimization", the data supported our proposition. Accordingly, significant differences were found in demographic variables in certain factors of cyber-victimization such as gender. Girls tended to use written-verbal cyber-victimization, whereas boys resorted to online exclusion, but no significant gender differences were observed in visual cyber-victimization or identity theft. These results are in line with the work of Baldry, Farrington and Sorrentino (2016), who found a similar prevalence of cyber-victimization between boys and girls. Additionally, the results from the present study are in line with findings from Alvarez-García et al. (2011), who emphasize that different types of cyber-victimization vary according to gender. Nevertheless, most studies have found gender differences, with girls accounting for a higher percentage of cyber-victimization than boys (Bastidas, Bedoya, Barrionuevo & Artos, 2021; Calvete et al., 2010; Felix et al., 2010).

As for age, only written-verbal cyber-victimization varied with age, which was highest in 16-year-old adolescents. This result was not consistent with previous work from Buelga et al. (2010), who argue that the risk of cyber-victimization is higher in the first years of CSE. In terms of academic performance, written-verbal cyber-victimization and identity theft were highest in student with poor academic performance (repeaters). These results are similar to those from previous studies revealing that poor academic achievers tended to be implicated in cyber-victimizing behavior (Avilés, 2010; Ortega-Reyes & González-Bañales, 2016; Yilmaz, 2011).

Regarding family status, adolescents from single-parent families experienced more written-verbal, visual, and identity theft cyber-victimization, whereas students from nuclear families tended to be exposed to

online exclusion. Law, Shapka, Domene and Gagné (2012) emphasize that living in a single-parent family is of little value in predicting cyber-bullying behavior. Martín (2021) claim that family conflict is a crucial variable influencing cyber-bullying. As for the level of education, 4th year CSE students obtained the highest values in written-verbal cyber-victimization. On the other hand, other researchers have found the highest cyber-bullying scores among 1st year CSE students (Felix et al., 2010).

Regarding the type of center and the setting, urban schools showed the highest levels of both visual cyber-victimization and online exclusion, whereas state-funded independent schools revealed the highest cyber-victimization in written-verbal, visual, online exclusion, and identity theft. These results are in line with previous findings from several researchers who report higher levels of cyber-bullying in urban settings (Álvarez-García et al., 2011; Crespo-Ramos, Vázquez-Cano & López-Meneses, 2021; Demsey, Sulkowski, Dempsey & Storch, 2011).

Data from the inferential analysis revealed that the most prominent types of cyber-victimization in adolescents were written-verbal in 16-year-old girls, students repeating grade, and students living in single-parent families during their fourth year of CSE in state-funded independent schools; in addition, visual cyber-victimization was highest among students from single-parent families attending state-funded independent schools in urban settings; online exclusion was highest in boys from nuclear families attending state-funded independent schools in urban areas; and identity theft was highest for student from single-parent families who had failed a subject while attended state-funded independent schools.

5. Conclusion

This study concludes that personal and school variables are reliable indicators for the detection and identification of cyberbullying. In fact, it has been confirmed that the highest probability of cyberbullying occurs mainly through cell phones on females between thirteen and fifteen years old living in dysfunctional families. These girls live in towns (population between 10,000 and 50,000 inhabitants), are in the last year of their compulsory education and have failed a subject.

The phenomenon of cyber-victimization is still latent in the adolescent period, and it is necessary to know and make this problem visible in order to know how to better address it. The main contributions of this study shed light on a greater presence during adolescence of verbal or written cyber-victimization (receiving calls with the intention of bothering or making fun of the victim and sending unpleasant photos or videos). It has also been seen how cyber-victimization is linked to personal, family and school variables (Castro, Vargas & Huerta, 2019). Therefore, it is necessary to evaluate this phenomenon to understand its repercussions and promote and integrate a responsible cyber culture in socio-educational communities.

The main limitation of this study was that the information gathered and analyzed was exclusively focused on perceptions and perspectives of CSE students, without contrasting this information against that from other actors such as parents, teachers, and other professionals involved in the school community. Moreover, the study was restricted to quantitative methodology based on a self-report questionnaire, an instrument whose efficacy relies entirely on the participants' truthfulness. Finally, further research should seek to increase our understanding of cyber-victimization to foster a culture of peaceful coexistence in schools.

Although these results of the work should be assumed with caution, due to the effects of social desirability, biases and transversality of the self-reports used, based on them we consider it important, to work from primary prevention and immediate intervention, reinforcing surveillance and creating strategies and educational policies to minimize their impact (Ruiz, Riuró & Tesouro, 2015). In this line we suggest three areas of action:

- From public institutions: create publicity campaigns to raise social awareness and competence in digital citizenship; incorporate among the functions of the professionals of support networks and social institutions the attention to this type of victims; or, create spaces and environments that allow citizen and intergenerational coexistence.

- From the families: maintaining healthy, fluid, stable and stimulating relationships among the members of the family unit; establishing family leisure time dynamics; agreeing on timetables for the use of mobile devices according to age; or supervising the social relationships of our children.

- From the classroom: incorporate interdisciplinary didactic units using active methodologies that allow students to base knowledge on empirical evidence and plausible experiences in the use of social networks; motivate students not to collaborate and denounce cases of cyber-victimization; facilitating the training of students and teachers in competencies related to social skills, emotional self-regulation, communication, adaptability or interpersonal relationships, mutual respect or reflective and critical capacity; or, establishing game dynamics in the extracurricular environment so that students learn about other ways of using their free time.

Declaration of Conflicting Interests

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