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Cyberbullying and problematic Internet use in Colombia, Uruguay and Spain: Cross-cultural study

Ciberacoso y uso problemático de Internet en Colombia, Uruguay y España: Un estudio transcultural

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Abstract

The goal of this cross-cultural study was to analyze and compare the cybervictimization and cyberaggression scores, and the problematic Internet use between Spain, Colombia and Uruguay. Despite cultural similarities between the Spanish and the South American contexts, there are few empirical studies that have comparatively examined this issue. The study sample consisted of 2,653 subjects aged 10-18 years. Data was collected through the cyberbullying questionnaire and the Spanish version of the "Revised generalized and problematic Internet use scale". Results showed a higher prevalence of minor cyberbullying behavior in Spain between 10-14 years. In the three countries compared, there was a higher prevalence of two types of bystanders: the defender of the victim and the outsider, although in Colombia there were more profiles of assistant to the bully. Regarding the problematic use of the Internet, there were not differences between the three countries. We provide evidence on the relationship between cybervictimization and cyberaggression and problematic use of the Internet. The dimensions of compulsive use and regulation of mood are the best predictors of cyberbullying. We discuss our results in relation to the possible normalization of violence and its lack of recognition as such.

Resumen

El objetivo de este estudio transcultural ha sido analizar y comparar las puntuaciones de cibervictimización y ciberagresión, y el uso problemático de Internet en adolescentes de España, Colombia y Uruguay, ya que pese a las semejanzas culturales existentes entre el contexto latinoamericano y español son escasos los estudios empíricos que los han comparado previamente. La muestra estuvo formada por 2.653 participantes de 10 a 18 años. Se recogieron datos a través del cuestionario de ciberacoso y de la versión en castellano del «Revised generalized and problematic Internet use scale». Los resultados ponen de manifiesto una mayor prevalencia de conductas de ciberacoso leve en España entre los 10-14 años. En los tres países, destacan



dos roles de ciberobservador: defensor de la víctima y no comprometido ante la agresión, aunque con más perfiles de apoyo al agresor en Colombia. No se observan diferencias en un uso problemático de Internet entre los tres países. Se proporcionan evidencias sobre la relación de la cibervictimización y ciberagresión con el uso problemático de Internet. Las dimensiones de uso compulsivo y regulación del estado anímico son las que mejor predicen el ciberacoso. Los resultados son discutidos con relación a la posible normalización de la violencia y su falta de reconocimiento como tal.

Keywords / Palabras clave

Cyberbullying, cibervictimización, ciberagresión, ciberbystander, Internet use, adolescents, cross-cultural study, compulsive use.

Ciberacoso, cibervictimización, ciberagresión, ciberobservador, uso de Internet, adolescentes, estudio trans-cultural, uso compulsivo.

1. Introduction

In the last decades, advances in technology and Internet tools have transformed the way we access information, communicate, express ourselves, and interact. However, despite its advantages, the Internet also involves some risks. Many of the psychosocial problems occurring in virtual life replicate the problems found in "real" life (e.g., peer abuse or gender-based abuse). Additionally, new problems have arisen as a result of the misuse of the Internet and/or digital media. The psychosocial problems associated with new technologies are addressed by "cyberpsychology". This branch of psychology focuses on the relationship between the human being and the use of technology in daily life.

One of the problems linked to the misuse of new technologies is cyberbullying, defined as any behavior performed through electronic or digital media –prevalingly cell phones and the Internet– by individuals or groups that repeatedly communicate hostile or aggressive messages intended to inflict harm or discomfort on others (Tokunaga, 2010). The most common behaviors include flaming, denigration (insults and humiliation), threatening and offensive calls or messages, impersonation, exclusion, and outing (Kowalski, Limber, & Agatston, 2012). Cyberbullying can occur anywhere at any time of the day, which aggravates uncertainty in the cyber victim and dramatically extends the potential audience. The identity of the perpetrator can be known or not (Tokunaga, 2010). This imbalance of power has a dramatic impact on the social and emotional well-being of the victim. Thus, cyberbullying affects the personality, self-esteem, social skills and ability of the victim to resolve conflicts (Zych, Ortega, & Del Rey, 2015). Notably, the role of cyber bystander is increasingly gaining relevance, and a range of preventive interventions focused on this role have been developed (e.g., the KIVA bullying prevention program; Salmivalli, Kärnä, & Poskiparta, 2011). Salmivalli (1999) studied in detail the role of bystanders in traditional bullying. The author noted that the role of bystanders in the prevention of perpetuation of bullying is crucial. The author identified five bystander sub-roles, namely: reinforcer of the bully, assistant of the bully, outsider, pro-victim, and defender of the victim, being the latter the most prevalent. Given the relevance of these sub-roles, understanding and identifying them is crucial. Little research has been conducted so far on this aspect.

Cyberbullying is a social problem which prevalence and incidence have increased dramatically around the world in recent years (Aboujaoude, Savage, Starcevic, & Salame, 2015). Intensive research has been conducted on cyberbullying in the USA and Europe. In contrast, few efforts are being made in Latin America, where cyberbullying has been studied using different methodologies. In Spain, recent data reveal that cyberbullying occurs in all regions, with a mean prevalence of 26,65% (mean SD: 23,23%) for cibervictimización (CBV) and 24,64% for ciberagresión (CBA) (mean SD: 24,35%) (Zych, Ortega-Ruiz, & Marin-López, 2016). The prevalence of cyberbullying is considerably higher in Latin America. In Colombia, its prevalence ranges from 30% (Redondo & Luzardo, 2016; Redondo, Luzardo, García-Lizarazo, & Ingles, 2017) to 60% (Mura & Diamantini,



2013). In Argentina and Mexico, rates reach 49% (Laplacette, Becher, Fernández, Gómez, Lanzilotti, & Lara, 2011; Lucio & González, 2012). Conversely, other studies have shown a prevalence of CBV below 15% in Mexico (Castro & Varela, 2013; García-Maldonado, Joffre, Martínez, & Llanes, 2011), Uruguay (Lozano & al., 2011) and Chile (Varela, Pérez, Schwaderer, Astudillo, & Lecannelier, 2014). These inconsistencies across countries are surprising, given the common ties of language and culture between Spain and Latin America that make comparative studies relevant. However, little research has been conducted to elucidate the causes of such differences. Romera, Herrera-López, Casas, Ortega-Ruiz, and Gómez-Ortiz (2017) recently performed a study to examine the influence of interpersonal variables (perceived social self-efficacy and social motivation) in cyberbullying. The author established a homogeneous model for the Spanish and Colombian population.

In relation to the use of the Internet, it is worth mentioning that the DSM-V (American Psychiatric Association, 2014) does not recognize addiction to or the intensive use of the Internet as an addictive disorder or as a "behavioral addiction". However, this does not mean that it is not harmful. One of the most widely used and accepted terms is "problematic Internet use" (Caplan, 2010). This approach places emphasis on the potential dysfunctions and interferences that some use patterns can cause in relation to an individuals' family, social and academic life. A large number of studies conducted in Spain (Gámez-Guadix, Orue, & Calvete, 2013), in Mexico (Gámez-Guadix, Villa-George, & Calvete, 2012), and in the European context (Blinka, Škařupová, Ševčíková, Wölfling, Müller, & Dreier, 2015) support the adoption of a cognitive-behavioral model to explain patterns of Internet misuse. These characteristics include a preference for online social interaction or compulsive use of the Internet, yet, few evidence has been published on the relationship between this construct and the different roles in cyberbullying, not to mention the scarcity of comparative data on different countries.

For this reason, the main goal of this study was to analyze and compare scores for CBA and CBV in Spain, Colombia, and Uruguay. Other secondary objectives include: (1) analyzing the factorial structure of the questionnaires used for the samples of Colombia and Uruguay; 2) describing and comparing the profile of cyber bystanders in the three countries; 3) analyzing and comparing patterns of problematic Internet use in the three countries; and 4) examining the relationship between a problematic Internet use and cyberbullying.

Based on the results of previous studies, our hypotheses were: (1) higher scores for CBV and CBA would be obtained for the Colombian population; (2) the factorial structure of the questionnaires employed would be valid for the Colombian and Uruguayan sample; (3) the most common cyberbystander sub-role would be that of defender of the victim, with a homogeneous distribution across the three countries; (4) no differences would be observed in patterns of problematic Internet use across countries; (5) a correlation exists between problematic Internet use and CBV and CBA .

2. Materials and methods

2.1. Sample

A cross-sectional, descriptive, analytical study was performed between March 2016 and July 2017. The sample was composed of 2.653 subjects 10 to 18 years of age ($M=14,48$; $SD=1,66$) from Colombia (51,3%), Uruguay (9,9%) and Spain (38,8%), of whom 50,8% were male ($N=1.350$) and 49,1% were female ($N=1.303$). Non-probabilistic incidental sampling was performed. Students were recruited from schools from north to south and from east to west of each country. A total of 12 schools were ultimately included. All centers were located in urban areas with a population of low-medium socioeconomic status. The Colombian sample was recruited from five public and three private schools located in Belén, Neiva, Bogotá and Cali ($n=1.363$; mean age 14,82; $SD=1,68$). The sample from Uruguay was recruited from a private school in Melo ($n=260$, mean age: 14,48; $SD=1,72$). The Spanish sample was obtained from two public schools in Valencia and Asturias, and a semi-private school in Seville ($n=1.030$; mean age: 14,01; $SD=1,49$). Age and sex distribution by country are shown in Table 1.



Table 1. Sociodemographic characteristics of the sample

Age	Colombia			Uruguay			Spain			% total
	H	M	%	H	M	%	H	M	%	
10-12	77	66	10,5	12	24	14	96	88	18	13,7
13-14	213	220	31,8	53	45	38	225	231	44,6	37,4
15-16	270	268	39,5	45	36	31,8	170	150	31,3	35,5
17-18	122	127	18,3	23	19	16,3	39	24	6,2	13,4
total	682 (50%)	681 (50%)	51,3	134 (51,8%)	126 (48,2%)	9,9	534 (51,8%)	496 (48,2%)	38,8	

Sex (M: Male, F: Female)

2.2. Assessment instruments

Sociodemographic data included sex (male/female), age (categorized into four age groups: 10-12; 13-14; 15-16 and 17-18 years) and country (Colombia; Uruguay; Spain).

"Cuestionario de Ciberacoso" (CBQ; Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Estévez, Villardón, Calvete, Padilla, & Orue, 2010; Gámez-Guadix, Villa-George, & Calvete, 2014). It contains a 17-item CBA scale and an 11-item CBV scale that evaluate behaviors associated with cyberbullying. Answers were scored on a 4-point Likert scale (0=never; 1=once or twice; 2= three or four times; 3=five or more times). Based on norm scores, three profiles, as follows: no problem (total score=0-1); minor cyber victim/cyberbully (scores $\geq 85^{\text{th}}$ percentile and $< 95^{\text{th}}$; c) severe cyber victim/cyberbully (scores $\geq 95^{\text{th}}$ percentile). The validation study in the Spanish population showed adequate reliability and validity. Cronbach's alpha coefficients for the CBV and CBA dimensions were $\alpha=.86$ and $\alpha=.82$, respectively. Some terms and expressions were adapted for the Colombian and Uruguayan version of the questionnaire (e.g. "móvil" [mobile] was replaced with "cellular"; "ordenador" [computer] with "computadora"; "agresor" [aggressor] with "matón", and "acoso" [bullying] with "matoneo", to name a few).

Participants were asked to define their role as cyber bystanders. Dimensions were established according to those described in the literature for traditional bullying (Salmivalli, 1999; Salmivalli Lagerpetz, Bjorkqvist, Osterman, & al., 1996), namely: a) assistant of the bully (never starts aggression, but occasionally supports the aggressor); b) reinforcer of the bully (supports the aggressor, but never joins him/her); c) outsider (never supports the aggressor or the victim); d) pro-victim (supports the victim but does nothing to stop the aggression); e) defender (often defends the victim).

Spanish version of the "Revised Generalized and Problematic Internet Use Scale" (GPIUS2, Gámez-Guadix & al., 2013). This 15-item questionnaire assesses problematic Internet use by five subscales: (1) preference for online social interaction; (2) mood modulated by the Internet; (3) negative effects; (4) cognitive concern; (5) compulsive use. Responses were measured on a 6-point Likert's scale (1=absolutely disagree; 6= agree). Scores were coded based on four categories: a) no problem (score $\geq 1 < 2$); b) isolated problems ($\geq 2 < 4$); c) potentially problematic use (score $\geq 4 < 5$); d) problematic use $\geq 5 \leq 6$). The scale yielded adequate levels of reliability and validity for the Spanish sample. Cochrane's coefficient for this study was $\alpha=.93$. Again, the Colombian and Uruguayan versions were adapted.

2.3. Procedures

Centers were first contacted by e-mail and, when they agreed to participate, they were contacted by phone for submission of the documents required to participate in the study. The battery of questionnaires was distributed in the classroom by a collaborator and school staff (generally, the class tutor or school counselor). Respondents were encouraged to give truthful answers, not spending too much time to answer a specific question and note down any doubt on the last page. The time required by students to complete the questionnaires ranged from 25 to 40 minutes. Participation was voluntary



and anonymous, and no compensation was provided. By completing the questionnaires, the students tacitly agreed to participate in the study. Previous consent was obtained from parents and school management. The study was approved by the Research Ethics Committee of Asturias, Spain (Ref 11/15).

3. Analysis and results

Prior to data analysis, structural equation models were created for the CBQ using weighted least squares estimates (WLS) based on the Colombian and Uruguayan samples altogether. Confirmatory factor analysis of GPIUS2 was performed using the robust method of maximum likelihood (including Satorra-Bentler's scaled χ^2 index). The goodness of fit of the estimated models was assessed using the non-normative fit index (NNFI), and comparative fit index (CFI) and the root mean square error of approximation (RMSEA). NNFI and CFI values above .90 indicate an acceptable goodness of fit, whereas values $>.95$ indicate good goodness of fit. RMSEA near .05 reveals excellent goodness of fit whereas values ranging from .05 to .08 indicate acceptable goodness of fit (Byrne, 2006; Hu & Bentler, 1999).

Other analyses included: 1) verification of the normal distribution of the sample (Shapiro-Wilks test) and homogeneity of variance (Levene test); 2) analysis of frequencies and measures of central tendency and dispersion of means; 3) estimation of the standard score for the variables found to be correlated; 4) χ^2 for post-hoc comparison of proportions; 5) partial correlations after adjustment for age; 6) analysis of variance using Bonferroni post-hoc comparisons; 7) stepwise multiple linear regression using F probability for an input value of .15 and an output of .20 to determine the GPIUS2 dimension that best predicted CBV and CBA scores in each country. When statistically significant differences were found, Cohen's d was calculated to estimate the effect size of the difference. A p value $<.05$ was considered statistically significant. Statistical analyses were performed using SPSS, 23 and Lisrel 8.5.

3.1. Validity and reliability of CBQ and GPIUS2 for the samples from Colombia and Uruguay

The hypothesized model was composed of two correlated factors, one for CBA and another for CBV (following Gámez-Guadix & al., 2014). The solution obtained was satisfactory, with the adequate goodness of fit: $\chi^2(234, N=1.620)=341$; $p<.001$; RMSEA=.059 (95% CI: .053-.066); NNFI=.98; CFI=.98. The CBV dimension obtained a Cronbach's alpha of .82 whereas CBA yielded .86.

As for GPIUS2, we used the five-item model described elsewhere (Caplan, 2010; Gámez-Guadix & al., 2013). Acceptable results were obtained: S-B $\chi^2(84)=401$; $p<.001$; RMSEA=.070 (IC 95%: .063-.079; NNFI=.98; CFI=.98). Cronbach's alpha was .90.

3.2. Prevalence of cybervictimization and cyberaggression

Table 2 shows differences across countries in total scores for CBV and CBA

Table 2. Compared total scores for cyberbullying by country (*p<.05; **p<.001)						
Country	CBV			CBA		
	mean (SD)	F (p) Post hoc	Cohen's d	Mean (SD)	F (p) Post hoc	Cohen's d
Colombia (a)	1,53 (3,38)	18.895**		,97 (2,8)	9.645**	
Uruguay (b)	2,68 (3,25)	b>a**	.34	1,55 (3,04)	b>a**	.19
Spain (c)	2,08 (3,16)	c>a**	.16	1,32 (1,69)	c>a**	.15
		b>c*	.18			

Mean=arithmetic average; SD= standard deviation; F= Snedecor's F; Post hoc= Bonferroni comparison.



Differences in the proportional distribution of severity of cyberbullying are shown in Table 3 by age and country. The percentage of participants with no problems was higher in Colombia. In contrast, Spain showed a higher number of participants with minor problems (especially within the 10-14 age range). No significant differences were observed regarding severe cyberbullying.

Table 3. Proportional distribution of severity of CBV and CBA by age and country
(*p<.05; **p<.001)

Age	CBQ Level	% CBV: Country			(gI); χ^2	% CBA: Country			(gI); χ^2
		CO ^(a)	UY ^(b)	SP ^(c)		CO ^(a)	UY ^(b)	SP ^(c)	
10-12 (1)	A	89,7 ^(c)	74,2	69,5	(4)=24,43; p<.001**	95,5 ^(c)	90,3	81,1	(4)=14,71; p=.005*
	B	4,4	12,9	24,1 ^(a)		1,5	6,5	11,2 ^(a)	
	C	5,9	12,9	6,4		3	3,2	7,7	
13-14 (2)	A	81,7 ^(c)	75	74,3	(4)=7,05; p=.133	91,9 ^(c)	89,3	79,1	(4)=49,37; p<.001**
	B	12	13,9	16,9		1	1,2	12,3 ^(a,b)	
	C	6,3	11,1	8,8		7,1	9,5	8,6	
15-16 (3)	A	81,8 ^(c)	72,4	84,5	(4)=12,47; p=.014*	87,2 ^(c)	86,8	74,7	(4)=39,32; p<.001**
	B	10,2	10,3	4,2		4,5	4,4	17,6 ^(a,b)	
	C	8,0	17,2	11,3		8,3	8,8	7,7	
17-18 (4)	A	84,6	74,1	80,9	(4)=3,32; p=.506	89,3 ^(b)	64	83,9	(4)=27,93; p<.001**
	B	8,9	11,1	12,8		0,9	20 ^(a)	7,1 ^(a)	
	C	6,5	14,8	6,4		9,8	16	8,9	
Post hoc: Age		---	---	(6)=31,89; p<.001**		(6)=21,01; p=.002*	(6)=17,16; p=.009*	---	
	A	---	---	3>1-2		1>3	2>4	---	
	B	---	---	1-2>3		3>2	2<4	---	
	C	---	---	---		---	---	---	
% Total (without age)	A	83,1 ^(b,c)	74,3	76,7	(4)=20,29; p<.001**	90 ^(c)	85,8	78,5	(4)=99,62; p<.001**
	B	9,9	12	14,3 ^(a)		2,4	5,2	13,4 ^(a,b)	
	C	7	13,6 ^(a)	9		7,6	9	8,1	

Country (CO: Colombia; UY: Uruguay; SP: Spain); CBQ severity (severity of cyberbullying, A: no problem B: minor problems C: severe problems). Numbers and letters were added to categories to facilitate reading and comparison.

The letters next to percentages indicate the countries among which significant differences were observed and the highest percentage compared to the other groups.

Differences based on age and sex were observed in severe CBV in Colombia (10-12 year-old, male: 1,3%; female: 11,7%), $\chi^2(2, N=8)=6,67; p<.05$), and minor CBV (15-16 year old, male: 4,3%; female: 16,2%), $\chi^2(2, N=37)=17,82; p<.001$), with a higher percentage for female students. Differences were also observed in Spain in the category of minor CBV, but with a higher percentage for males (13-14 years, male: 25%; female: 7%), $\chi^2(2, N=28)=18,13; p<.001$. No gender- or sex-based differences were found in relation to CBA.

3.3. Profile of cyber bystander

Based on the total scores shown in Table 4, most respondents reported playing the sub-role of defender of the victim, followed by that of the outsider. Thus, gender-based differences were observed, being male students more likely to play the role of outsider (34,9% vs. 31,2%), $\chi^2(1, N=856)=4,21; p=.04$, whereas female students were more likely to adopt a role of defenders of the victim (male: 38,2%; female: 44,3%; $\chi^2(1, N=1.067)=3,96; p=.047$).

Age-based differences were only observed in Colombia, $\chi^2(12, N=1.339)=42,21; p<.001$, being the role of assistant of the cyberbully prevalent among 10-12-year-old students as compared to 15-18-year-old students.

Statistically significant differences were observed between Colombia and Spain in the sub-roles of assistant $\chi^2(2, N=151)=167,57; p<.001$; reinforcer, $\chi^2(2, N=123)=65,02; p<.001$; and outsider, $\chi^2(2, N=857)=275,26; p<.001$. In contrast, the sub-roles of pro-victim, $\chi^2(2, N=392)=86,61; p<.001$, and



defender of the victim, $\chi^2(2, N=1.069)=258,07$; $p<.001$, were significantly more prevalent in Spain than in Colombia.

Table 4. Proportional distribution of the level of cyber bystander by age and country

Country	Age	Profile of cyber bystander				
		Assistant	Reinforcer	Outsider	Pro-Victim	Defender of the Victim
Colombia	10-12	15,5	4,9	25,4	16,9	37,3
	13-14	12,7	7,5	31,1	14,4	34,4
	15-16	6,4	5,9	39,1	12,7	35,9
	17-18	6,2	4,9	40,3	7	41,6
% Subtotal		9,3	6,1	35,3	12,6	36,6
Uruguay	10-12	2,8	5,6	22,2	16,7	52,8
	13-14	3,2	4,3	21,3	19,1	52,1
	15-16	2,6	6,4	37,2	17,9	35,9
	17-18	2,6	2,6	50	15,8	28,9
% Subtotal		2,8	4,8	31,2	17,6	43,6
Spain	10-12	0,6	3,4	26,4	14,6	55,1
	13-14	2,7	2,5	29,1	19,4	46,4
	15-16	1,3	3,9	34,1	19	41,8
	17-18	3,2	0	36,5	9,5	50,8
% Subtotal		1,9	2,9	30,5	17,8	46,9
% total		5,7	4,7	33,1	15,1	41,2

3.4. Problematic Internet use

Differences in overall scores on GPIUS2 were only observed between Colombia and Uruguay ($F_{2,5653}=4.052$; $p=0.018$; $d=.20$) (Colombia: $M=2,14$, $SD=1,05$; Uruguay: $M=2,34$, $SD=.94$; Spain: $M=2,20$, $SD=1,08$). No gender- or age-based differences were found. By category, differences among countries were prevalently found in isolated problems (Table 5).

Table 5. Percentage distribution for GPIUS2 dimensions and category by country
(* $p<.05$; ** $p<.001$)

GPIUS2 Dimensions	Category	Country			(g) χ^2 n=2.655
		CO (a)	UY (b)	SP(c)	
Preference for online social interaction	A	61,2	66,7	68,7 ^(a)	(6)=18,01; $p=.006^*$
	B	32,4 ^(c)	26,8	25,3	
	C	4,5	3,4	3,9	
	D	1,9	3,1	2,1	
Mood regulation	A	46,4 ^(b,c)	26,4	40,9 ^(b)	(6)=45,61; $p<.001^{**}$
	B	34,9	44,1 ^(a)	39,8 ^(a)	
	C	11,9	17,2 ^(c)	10,5	
	D	6,7	12,3 ^(a)	8,8	
Negative effects	A	69,8	72,4	74,7	(6)=45,61; $p>.05$
	B	23,6	23,4	19,5	
	C	4,4	3,4	4,2	
	D	2,2	0,8	1,6	
Cognitive concern	A	67,4 ^(b)	57,9	63,2	(6) =14,22; $p=.027^*$
	B	25	34,1 ^(a)	27,7	
	C	5,4	5,7	5,5	
	D	2,3	2,3	3,5	
Compulsive use	A	61,8 ^(b,c)	44,1	52,8 ^(b)	(6) =43,61; $p<.001^{**}$
	B	29,1	42,5 ^(a,c)	33,2	
	C	5,4	8,4	8,9 ^(a)	



	D	3,7	5	5,1	
Total GPIUS2	A	54 ^(b)	41,8	53,6 ^(b)	(6)=22,14; p<.001**
	B	39,5	54 ^(a.c)	39,6	
	C	5,4	3,4	5,1	
	D	1,1	0,8	1,7	

Category (A: no problem; B: isolated problems; C: potentially problematic use; D: problematic use). Letters next to percentages indicate countries among which significant differences were observed and the highest percentage compared to the other groups.

All GPIUS2 dimensions were positively and significantly correlated with overall scores for CBV and CBA, although differences –especially between Colombia and Uruguay– were low to moderate (Table 6).

Table 6. Pearson's partial correlation coefficients for GPIUS2 and CBQ dimensions (after adjustment for age) (*p<.05; **p<.001)			
Dimensions	Country		
	CO: n=1.360; UY: n=255; SP: n=1.021		
		CBV	CBA
Preference for online social interaction	CO	.156**	.099**
	UY	.159*	.159*
	SP	.204**	.141**
Mood regulation	CO	.177**	.09*
	UY	.308**	.201**
	SP	.312**	.214**
Negative effects	CO	.182**	.168**
	UY	.227**	.277**
	SP	.305**	.223
Cognitive concern	CO	.174**	.133**
	UY	.243**	.192**
	SP	.314**	.255
Compulsive use	CO	.187**	.157**
	UY	.187*	.213*
	SP	.335**	.313**

Multiple linear regressions were performed to identify the GPIUS2 dimension that best predicted total scores for CBV and CBA. For Colombia, CBV was predicted by compulsive use ($\beta=.332$ [.174-.490]; $p<.001$) and mood regulation ($\beta=.263$ [.124-.403]; $p<.001$) [$r^2=.049$]; whereas CBA was best predicted by negative effects ($\beta=.406$ [.282-.530]; $p<.001$) [$r^2=.030$]. For Uruguay, the best predictors were mood regulation (for CBV: $\beta=.680$ [.382-.977]; $p<.001$; for CBA: $\beta=.303$ [.060-.546]; $p<.015$) [$r^2=.103$] and negative effects (for CBV: $\beta=.566$ [.128-1.005]; $p=.012$) [$r^2=.124$]; for CBA: $\beta=.716$ [.358-1.075]; $p<.001$). In Spain, compulsive use ($\beta=.296$ [.140-.452]; $p<.001$), mood regulation ($\beta=.286$ [.167-.404]; $p<.001$) and negative effects ($\beta=.271$ [.095-.448]; $p=.003$) [$r^2=.143$] were predictors of CBV. CBA was predicted by compulsive use ($\beta=.377$ [.308-.446]; $p<.001$) [$r^2=.100$].

4. Discussion and conclusions

This study contributes to the understanding of the prevalence of cyberbullying and the problematic use of the Internet from a comparative approach. In addition, evidence of correlations between the two phenomena is provided.

Few cross-cultural studies have been conducted in relation to cyberbullying. Comparative studies of Spain and Latin America are scarce. The main objective of this study was to analyze and compare the characteristics of cyberbullying in Colombia, Uruguay, and Spain. The results obtained show that minor-CBV is more frequent in Spain than in Colombia, as is CBA in Spain with respect to Colombia



and Uruguay. CBV was more frequent in Uruguay than in Colombia. These data do not confirm our first hypothesis that scores for cyberbullying would be higher in Colombia as reported in previous studies. This inconsistency may be due to respondents' inability to recognize that their cyberbullying related behaviors are problematic or a form of cyber abuse. The fact that peer cyberbullying has become commonplace among youngsters may be the result of the social and cultural changes caused by the generalization of violence experienced in the last years (Castro & Varela, 2013). Thus, individuals tend to justify violence and adopt an individualistic perspective by which people have to solve their own problems (Cruz, 2014).

Comparative studies of the prevalence of cyberbullying in Europe and Latin America are hindered by methodological differences, yet the prevalence rates obtained in this study are consistent with those reported in previous studies conducted in Colombia (Herrera-López, Romera, & Ortega-Ruiz, 2017). However, lower prevalence rates have been documented in other Latin American studies (Castro & Varela, 2013; del-Río-Pérez, Bringue, Sádaba, & González, 2009), and the only study performed in Uruguay (Lozano & al., 2011). The prevalence rates reported in these studies range from 6% to 12%, which is consistent with the results obtained in this study. Also, these rates are similar to those obtained in other studies reporting a prevalence of severe cyberbullying ranging between 2% and 7% (Castro & Varela, 2013; Garaigordobil, 2011; García-Fernández, Romera-Félix, & Ortega-Ruiz, 2016; Herrera-López & al., 2017).

Regarding age, the frequency of cyberbullying has consistently been reported to decrease as age increases (Aranzales & al., 2014) peaking at 12-14 years (Tokunaga, 2010) and 14-15 years (Herrera-López & al., 2017; Zych & al., 2015). This is supported by the results of this study, as prevalence rates were higher in the 13-14 and 15-16 age groups. In relation to gender, the prevalence of CBV was higher among female students, as described in previous studies (Garaigordobil & Aliri, 2013). In contrast, gender-based differences were not observed in relation to CBA.

The role of cyber bystander has been little studied (Jones, Mitchell, & Turner, 2015) and only in English-speaking countries. Nevertheless, the results of this study confirm our third hypothesis, which supports the results obtained for traditional bullying (Salmivalli, 1999; Salmivalli & al., 1996). Thus, prevalent sub-roles include defender of the victim and outsider. Data showed a homogeneous distribution across countries, except for the roles of supporter and reinforcer of the bully. The prevalence of these roles was considerably high in the 10-to-14-year range in the Colombian sample, where support to the victim was lower.

There is growing evidence that problematic Internet use among adolescents has a negative impact on their quality of life, as it causes changes in health habits (sleep, diet, physical activity, among others) and interferes with their family, social and academic life (Cerniglia, Zoratto, Cimino, Laviola, Ammaniti, & Adriani, 2017; Muñoz-Rivas, Fernández-González, & Gámez-Guadix, 2010). Epidemiologic studies have confirmed the clinical and social relevance of problematic Internet use. The meta-analysis conducted by Cheng and Li (2014) with data from 31 countries revealed prevalence rates ranging from 2,6% to 10,9% depending on the country. The prevalence of problematic Internet use documented in this study was lower than the ones reported in previous studies (<2%) but is consistent when potentially problematic Internet use is included in estimations (reaching 7%). The results obtained also confirm our fourth hypothesis: no significant differences exist among countries. However, no studies had been previously conducted to compare cyberbullying in Uruguay, Colombia and Spain.

Evidence on the correlation between problematic Internet use and cyberbullying is also limited. Our fifth hypothesis was also confirmed, as a positive correlation was observed between the GPIUS2 dimensions studied and CBV and CBA. The dimensions that seem to predict best cyberbullying were mood regulation (for CBV), negative effects (for CBA) and compulsive use (for CBV and CBA).

Finally, the results obtained showed that the instruments used have an adequate factorial validity and reliability for the Colombian and Uruguayan population. Validation was performed as described elsewhere (Gámez-Guadix & al., 2013; 2014), which confirms the null hypothesis.



The diversity of methods employed by which questionnaires and scales were homogenized allows for future comparative studies among different countries. This study may serve as a reference for future cross-cultural studies.

This study had some limitations. First, the results obtained were based on self-reports, with the potential risk of bias. This could be solved in the future by the administration of questionnaires to parents, teachers and peers. Another limitation is that the design of the study is cross-sectional, convenience sampling was performed, and the Uruguayan sample was small with regard to the Spanish and Colombian samples. In addition, the sample only includes students from urban areas with a low/middle socioeconomic status. Third, although evidence of the internal validity of the instruments was obtained for the Colombian and Uruguayan sample altogether, confirmatory factor analysis could not be performed for the Uruguayan sample due to the small size of the sample. Predictive validity and test-retest reliability could also have been assessed. In general terms, the external validity of the results obtained is limited. This study should be understood as a first approach to compare cyberbullying in these three countries. Future longitudinal studies should be conducted to replicate the results obtained in populations from other regions and countries.

In conclusion, this cross-cultural study provides empirical evidence on cyberbullying in two Latin American countries (Colombia and Uruguay) and Spain. Also, this study contributes to the body of knowledge on the prevalence of cyberbullying and identifies it as a problem that affects all cultures and regions. This is the first study to analyze the problematic Internet use from a comparative approach.

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