Psicothema

Psicothema 2015, Vol. 27, No. 4, 347-353
doi: 10.7334/psicothema2015.35

ISSN 0214 - 9915 CODEN PSOTEG

www.psicothema.com

Explicative factors of face-to-face harassment and cyberbullying in a sample of primary students

Cristina María García Fernández, Eva Mª Romera Félix and Rosario Ortega Ruiz
Universidad de Córdoba

Abstract

Background: Research has shown that there is a co-occurrence between bullying and cyberbullying in relation to certain variables that describe and explain them. The present study aims to examine the differential influence of individual and contextual variables on perception of the role played in the involvement in both phenomena. **Method:** Participants were 1278 schoolchildren (47.7 % girls) of primary education, aged 10 to 14 years (*M*=11.11, *SD*= 0.75). **Results:** Logistic regression analysis indicated that social adjustment, normative adjustment, disruptiveness, gender, and self-esteem explain a substantial part of the involvement in both violent phenomena as victims, aggressors, and bully/victims. **Conclusions:** The results are discussed regarding the weight that must attributed to individual versus contextual factors, concluding that the explicative weight of the immediate social elements and educational context may make the difference.

Keywords: bullying, cyberbullying, roles, contextual factors, individual variables.

Resumen

Factores explicativos del acoso cara a cara y del ciberacoso en escolares de primaria. **Antecedentes:** la investigación ha puesto de manifiesto cierta co-ocurrencia entre el bullying y el cyberbullying en determinadas variables que los describen y explican. El presente estudio tiene como objetivo examinar la influencia diferencial de variables individuales y de contexto en la percepción del rol jugado en la implicación en bullying y cyberbullying. **Método:** participaron 1278 escolares de Educación Primaria (47.7% chicas) con edades comprendidas entre los 10 y los 14 años (*M* = 11.11; *DT*=0.75). **Resultados:** los análisis de regresión logística señalaron que el ajuste social, el ajuste a las normas, la disruptividad, el género y la autoestima explican una parte sustancial de la implicación, en ambos fenómenos violentos, de víctimas, agresores y agresores victimizados. **Conclusiones:** se discuten los resultados en relación al peso que debe atribuirse a factores individuales frente a factores contextuales próximos, concluyéndose que el peso explicativo de los elementos sociales inmediatos y de contexto educativo pueden estar marcando las diferencias.

Palabras clave: bullying, cyberbullying, roles, factores de contexto, variables individuales.

Bullying has been defined as an aggression that is intentional and repeated over time by one or more individuals toward a victim who cannot easily defend him or herself (Olweus, 1999). Its social nature has been recognized, focused on the social relationships among victims, aggressors and bystanders (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996). Cyberbullying shares the three defining characteristics of bullying—intentionality, repetition and power imbalance (Olweus, 2012; Smith, 2015)—but specific features, such as anonymity and publicity, must be included (Bauman, Walker, & Cross, 2013; Smith, 2015). Studies of prevalence have pointed out that, while traditional bullying is relatively decreasing (Slonje, Smith, & Frisen, 2012), cyberbullying is on the rise (Modecki, Minchin, Harbaugh, Guerra, & Runions, 2014). Studies about gender and age highlight that boys show a greater involvement (Barlett & Coyne, 2014; Carlerby, Viitasara, Knutsson, & Gådin, 2012) and establish different evolutionary stages of participation in both phenomena, placing primary education as the peak period for bullying and secondary education for cyberbullying (Roland, 2010; Smith, 2012).

Research on bullying and cyberbullying has documented the risk and protective factors for becoming victims or aggressors. Studies have highlighted that, in victims and cyber-victims, having low personal self-esteem is a risk factor (Cénat et al., 2014; Garaigordobil, Martínez-Valderrey, & Aliri, 2013; Suresh & Tipandjan, 2012), mainly in girls (Brito & Oliveira, 2013). Low social adjustment is a predictor of victims of bullying (Cook, Williams, Guerra, Kim, & Sadek, 2010) and victims of cyberbullying (Brighi et al., 2012; Pettit, Lansford, Malone, Dodge, & Bates, 2010). Recent studies that include the contextual variables point out that the risk of victimization in bullying is reduced in educational contexts in which the teacher actively disapproves indiscipline (Saarento, Kärnä, Hodges, & Salmivalli, 2013). In the case of cyberbullying, the relevance of the group of peers is recognized, although the aggression might not occur on the physical grounds of the school (Hinduja & Patchin, 2013).

In aggressors, low levels of self-esteem have been identified as a risk factor (Fanti & Henrich, 2014), although other studies

Received: April 25, 2014 • Accepted: August 6, 2014
Corresponding author: Cristina María García Fernández
Facultad de Ciencias de la Educación
Universidad de Córdoba
14071 Córdoba (Spain)
e-mail: m12gafec@uco.es

point out that the aggressors have high levels of self-esteem (Brito & Oliveira, 2013) but low academic results (Li, Smith, & Cross, 2012; Preddy & Fite, 2012). Social context and adjustment has a moderating effect on bullying and cyberbullying (Perren & Gutzwiller-Helfenfinger, 2012; Rigby, 2003). Social context can reinforce aggressors' behaviour when it is accepted by their classmates (Díaz-Aguado & Martínez-Arias, 2013; Ortega-Ruiz, Del Rey, & Casas, 2013).

In the bully/victim, the social context turns out to be a determining risk factor (Estévez, Murgui, & Musitu, 2009). In addition, the lowest levels of self-esteem have been attributed to this role (Brito & Oliveira, 2013), as well as low academic performance (Fanti & Georgiou, 2013; Nakamoto & Schwartz, 2010).

A new line of research has opened, comparing children´s involvement in bullying and cyberbullying in terms of prevalence, overlap, and effects on victimization and aggression, with the aim of finding a link between them (Atik & Güneri, 2013; Bradshaw, Waasdorp, & Johnson, 2015). Despite this, there is a need to advance in identifying psychosocial risk and protective factors associated with the different profiles in bullying and cyberbullying involvement. Recent studies recognize the influence of personal and contextual factors in aggressive behaviour and victimization (Casas, Del Rey, & Ortega, 2013; Fanti, Demetruiou, & Hawa, 2012; Hemphill et al., 2012; Hinduja & Patchin, 2013; Preddy & Fite, 2012), and a higher influence of contextual factors is identified in bullying than in cyberbullying (Atik & Güneri, 2013; Feslt & Quandt, 2013; Hemphill et al., 2012; Law, Shapka, Domene, & Gagné, 2012). It is necessary to deepen investigation into the relationship between cyberbullying and bullying in terms of risk and protective factors for the roles of aggressor, victim and bully/victim. Moreover, many studies have investigated these factors with adolescents, but not in primary schools.

The objective of this study was to analyse individual factors, like self-esteem or academic performance, and contextual factors, such as social adjustment, normative adjustment and disruptiveness, that influence involvement in bullying and cyberbullying as aggressor, victim or bully/victim. Our working hypotheses were: (a) there are common risk factors between bullying and cyberbullying; b) contextual factors have a higher influence than personal factors in bullying and cyberbullying.

Method

Participants

Stratified random sampling used. The group comprised 1278 schoolchildren (47.7% female) from 248 urban and rural schools of the southern region of Spain, aged 10 to 14 years old (M = 11.1, SD = 0.75). Of them, 49.4% were in fifth grade and 50.6% in sixth grade of primary education.

Instruments

Implication in victimization and aggression in bullying and cyberbullying. This measure is composed of four multiple-choice questions with four response options: *never*, *rarely, about once a week*, and *a few times a week*. The questions were based on previous measures by Dooley, Pyzalski and Cross (2009) and Del Rey et al. (2015) to evaluate the two dimensions of bullying and cyberbullying: victimization and aggressive behaviours. The bullying items were: "How many times have you felt intimidated, rejected or mistreated by one/some of your peers in the last three months?" and "How many times have you intimidated, rejected or mistreated your peers in the last three months?" Cyberbullying items were: "How many times have you felt intimidated, rejected or mistreated via mobile or internet by one/some of your peers in the last three months?" and "How many times have you intimidated, rejected or mistreated your peers, via mobile or internet, in the last three months?" These questions were used to assess each student´s bullying and cyberbullying roles: bully, victim, bully/victim and uninvolved.

Self-esteem. *The Rosenberg Self-Esteem Scale (1965)* consists of ten Likert-type scale items. Answer options indicate the level of agreement (1 = *strongly disagree*; 4 = *strongly agree*). Negative items were inversely coded. Validation results suggest unifactorial and bifactorial models (Huang & Dong, 2012). To study the adequacy of the estimated models, we used the comparative fit index (CFI), goodness of fit index (GFI), non-normed Fit Index (NNFI), values over .95 indicate a good fit, and the root mean square error of approximation (RMSEA), whereas values between .05 and .08 indicate an acceptable fit (Byrne, 2006). The studies on Spanish samples show a unifactorial model in university students and a bifactorial structure in adolescents: χ^2 S-B = 266.66 (34), p = .00, RMSEA = .06, CFI = .98, GFI = .99, NNFI = .98 (Gómez-Ortiz, Casas, & Ortega-Ruiz, in press), coinciding with other cross-culture studies: χ^2 = 494.28, RMSEA = .04, CFI = .97 and NNFI = .97 (Supple, Su, Plunkett, Peterson, & Bush, 2013). In the absence of studies analysing the factorial structure of scale in Spanish schoolchildren, psychometric properties were analysed, supporting the structure of two correlated factors: positive self-esteem (i.e. "On the whole, I am satisfied with myself") and negative self-esteem (ie. "At times, I think I am no good at all "). Indices of reliability for the current study were adequate: Ω positive self-esteem = .80 and Ω negative self-esteem = .76.

Peer social adjustment, normative adjustment and disruptiveness and conflict. Three scales of the *School Wilde Climate Scale* were used (Del Rey, Casas, & Ortega, in press) according to a Likert scale with frequency ranging from 0 to 4: *peer social adjustment*, composed of nine items (e.g. "I join in with the activities others are doing") (α = .79); *normative adjustment,* composed of five items (e.g. "I follow the rules") (α = .87); and *disruptiveness and conflict,* composed of four items (α = .70) (e.g. "I only follow the rules that work for me"). The instrument was tested for validity with Andalusian students aged 11 to 19.The original instrument indices for the AFC were: χ^2 = 3489.84; RMSEA = .05; CFI = .96 and NNFI = .96. The results section shows the validation of each of the scales. Indices of reliability of the studio sample were ΩAS = .85, ΩAN = .80, ΩDC = .73.

Academic performance. A multiple-choice question was used regarding the student's perception of his or her own academic performance (1= *I get good marks*; 2= *I am passing all subjects;* 3 = *I am passing almost all subjects*; 4 = *I am failing all subjects*).

Procedure

Once the relevant authorizations had been applied for, the randomly selected centres were contacted. When both the schools and the families had agreed to participate, the questionnaires were administered in paper format by informed researchers during the

last semester of the academic year. After a short explanation about the questionnaire, the teachers were absent from the classroom for 50 minutes while the questionnaire was carried out. The voluntary and anonymous nature of the study was emphasized.

Data analysis

The degree of implication was kept in mind to configure the roles of involvement in both phenomena—victims, aggressors, bully/victims and not involved. The theoretical model presented by Mora-Merchán, Ortega, Justicia and Benítez (2001) was used. The category of *rarely* was classified as occasional and the categories of *about once a week* and *a few times a week* were considered frequent behaviours. According to this classification, aggressors were considered as those who had been involved in situations of aggression and not victimization; victims as those who had suffered abuse but had not assaulted others; and bully/victims as those who had participated in situations of aggression and victimization (Gómez-Ortiz, Del Rey, Casas, & Ortega-Ruiz, 2014).

The proportion contrast analysis χ^2 was used for the study of the gender and grade variables for each of the roles.

Psychometric properties of the self-esteem scale for Spanish primary school students were evaluated. To analyse the dimensional structure, the total sample was split equally into two subsamples with a proportional number of boys and girls (Schmitt, 2011). One half of the sample underwent exploratory factor analysis (EFA) using an unweighted least square estimation method (ULS) and Promin rotation. The Factor 9.2 program was employed, which permits the use of polychoric correlation matrices, recommended when working with non-normal distributions and ordinal variables (Lorenzo-Seva & Ferrando, 2013). The other half of the sample was subjected to confirmatory factor analysis (CFA) using the robust maximum likelihood (RML) estimation method via EQS 6.2 (Byrne, 2006). McDonald's Omega (Ω) was computed using Factor 9.2, recommended for evaluating the reliability of ordinal variables (Elosua & Zumbo, 2008).

The psychometric properties of the social adjustment, normative adjustment and the disruptiveness scales were calculated.

The fit of CFA was examined by taking into account the following indexes: χ^2Satorra-Bentler (S-B)/gl (< 5) (Carmines & McIver, 1981), comparative fit index (CFI), non-normed fit index (NNFI) (> .95), root mean square residual (RMR) and root mean square error of approximation (RMSEA) (values lower than .08) (Byrne 2006; Hu & Bentler, 1999).

A stepwise forward multinomial logistic regression was used to identify factors which were helpful in explaining the roles of involvement in bullying and cyberbullying. This method of including variables by step was used considering the recommendations for their parameters: pseudoR^2 indices (Nagelkerke's, Cox-Snell's), beta coefficients (β), standard error, Wald, 95% interval confidence, odds ratio (OR). The variables with standardized errors greater than two were not taken into account in the regression model (Hosmer, Lemeshow, & Sturdivant, 2013). SPSS version 20.0 was used.

Results

In traditional bullying, 33.5% of the students were not involved, 17.2% were victims (11.8% occasional and 5.4% frequent), 27.8% were considered aggressors (16.9% occasional and 10.8% frequent) and 21.5% were a bully/victim (18.4% occasional and 3.1% frequent). Boys were more likely to be involved than girls (51% boys and 48.2% girls): χ^2 (4, 1021) = 23.558, p<.01; C = .150. No significant statistical differences were observed regarding age, measured by school grade. In cyberbullying, 80.5% of students were not involved, 10.1% labelled themselves as cybervictims (8.2% occasional and 1.9% frequent), 5.8% as cyberaggressors (4.1% occasional and 1.6% frequent) and 3.6% as a cyberbully/victim (2.7% occasional and 0.9% frequent). Data show statistically significant differences in gender, with boys more likely to be involved (53.2% boys; 46.8% girls): χ^2 (4, 1187) = 18.547, p<.01; C = .124). No statistically significant differences were observed in grade.

We found that univariate skewness and univariate kurtosis values for all of the items in the scale were within the expected range of normality (see Table 1).

Results of EFA of self-esteem scale showed its suitability with a model of two factors (KMO = .806; p<.01) (see Table 2 for univariate statistics). The total observed variance found was 57% (negative self-esteem, 39%; positive self-esteem, 18%).The goodness-of-fit indices of CFA obtained optimum values for the two-dimensional model: χ^2S-B/gl = 2.75; p<.01; NNFI = .942; CFI = .956; RMSEA = .061. Indices of CFA for one factor were not adequate: χ^2S-B/gl = 9.5; p<.01; NNFI = .718; CFI = .781; RMSEA = .133.

Table 1
Means, Kurtosis and Skewness for Scales

	M	SD	Kurtosis	Skewness
Social adjustment among peers				
The students get along	2.97	0.924	0.202	-0.702
My classmates are interested in me	2.51	1.211	-0.603	-0.475
I help my classmates with what they need	3.18	0.916	0.794	-1.036
My mates help me when I need them	2.95	1.127	-0.036	-0.881
I feel I have friends	3.57	0.904	5.285	-2.382
I express and defend my opinions without harming others	2.99	1.153	0.325	-1.049
I join others in their activities	3.09	1.004	0.766	-1.070
My mates like me	3.21	0.946	1.632	-1.386
I like working in a group	3.47	0.994	3.136	-1.902
Adjustment to social norms				
I learn	3.65	0.691	6.497	-2.383
I leave work without disturbing others	3.30	0.986	1.909	-1.529
I have to ask for permission to speak and I wait my turn to speak	3.34	0.924	1.779	-1.466
I meet the standards	3.30	0.910	1.576	-1.346
I respect the opinions of others	3.09	1.055	0.669	-1.108
Disruptiveness and conflict				
I only follow the rules that suit me	1.23	1.330	-0.538	0.786
I am punished	1.02	0.994	-0.524	0.716
I interrupt classes because I get bored	0.40	0.751	4.241	2.061
I get bored	1.50	1.261	-0.770	0.455
Academic performance	1.69	0.881	-0.514	0.891

Table 2
Univariate statistical analysis for EFA

	M	SD	Kurtosis	Skewness	Loadings	h^2
Positive self-esteem						
On the whole, I am satisfied with myself	3.48	0.771	2.458	-1.549	.505	.43
I feel that I have a number of good qualities	3.30	0.699	1.486	-0.961	.617	.43
I am able to do things as well as most other people	3.41	0.729	1.476	-1.221	.675	.52
I feel I have much to be proud of	3.28	0.825	0.545	-1.026	.607	.44
I feel that I'm a person of worth, or at least on an equal plane with others	3.35	0.852	1.033	-1.291	.590	.32
I take a positive attitude towards myself	3.46	0.818	1.869	-1.543	.534	.42
Negative self-esteem						
At times, I think I am no good at all	1.62	0.864	0.435	1.194	.715	.56
I wish I could have more respect for myself	2.71	1.119	-1.251	-0.340	.715	.54
All in all, I am inclined to feel that I am a failure	1.51	0.850	1.613	1.580	.568	.37
I certainly feel useless at times	1.80	1.001	-0.324	0.949	.701	.63
Mardia's coefficient = 45.16						

Results of validity of the scales of social adjustment, normative adjustment and disruptiveness were social adjustment: NNFI = .953; CFI = .966; RMSEA = .076; Mardia's coefficient = 38.6429; normative adjustment: NNFI = .993; CFI = .996; RMSEA = .031; Mardia's coefficient = 28.226; disruptiveness and conflict: NNFI = .986; CFI = .995; RMSEA = .043; Mardia's coefficient = 5.380.

Logistic regression analysis for traditional bullying showed a good adjustment—-2LL = 1112.9249; χ^2 (15, 738) = 195.065, $p<.01$) — and with acceptable pseudoR^2 indices (Nagelkerke'sR^2 = .355; Cox-Snell'sR^2 = .331). This model allowed a correct estimate of 50.3% of the cases, with the following variables forming part of the equation as predictors. For victims, disruptiveness and conflict (OR= 3.316) and gender (boy) (OR = 1.826) had a positive relation; social adjustment had a negative relation (OR = .447). b) For aggressors, negative self-esteem with a higher predictive value (OR = 2.342), positive self-esteem (OR = 2.064) and gender (boy) (OR = 1.908) showed a positive influence; social adjustment among peers had a negative influence (OR = .237); c) For bully/victims, disruptiveness and conflict showed the highest influence in a negative sense (OR = 2.711), gender (boy) had a positive relationship (OR = 2.031) and social adjustment among peers had a negative relationship (OR = .346) (see Tables 3 and 4).

For homogenization of the number of subjects in each role, a random selection was performed of the 15% not involved in cyberbullying. The regression model shows a good fit (-2LL = 581.839, χ^2 (9, 399) = 73.445, p<.01) with correct pseudo R^2values (Nagelkerke'sR^2 = .264; Cox-Snell´sR^2 = .241). This model was adjusted and valid for explaining 52.3% of the cases, the following variables forming part of the equation as predictors. a) For victims, negative self-esteem (OR = 1.945) with a positive direction and normative adjustment (OR = .378) had a negative influence. b) For aggressors, gender (boy) had a positive influence (OR = 3.119) and normative adjustment had a negative relationship (OR = .199). c) With the bully/victim, normative adjustment had a negative influence (OR = .2227) (see Tables 5 and 6).

Discussion

The purpose of this study was to examine which individual and contextual variables impact participation in bullying and cyberbullying as an aggressor, a victim and a bully/victim.

The findings show that contextual factors associated with social relationships among peers and adjustment to coexistence norms play an important role in both phenomena, bullying and cyberbullying, along with individual variables (gender and self-esteem) that are considered in studies (Casas, Del Rey, & Ortega, 2013; Cook et al., 2010; Hinduja & Patchin, 2013; Saarento et al., 2013).

Lack of social adjustment among peers is a risk factor for implication in bullying but not in cyberbullying. This result supports that the quality of interpersonal relationships has a higher influence on the roles of victims, aggressors and bully/victims (Casas, Del Rey, & Ortega, 2013): it indicates that the physical context of the peers has a direct influence on face-to-face aggressive behaviours (Cook et al., 2010), and the fact that this factor has an indirect role in cyberbullying (Hinduja & Patchin,

Table 3
Steps of the multinomial regression model for involvement in bullying

Model	Effects	AIC	BIC	-2LL	Chi-Squared	gl	Sig.
Step 0	Intersection	1313.989	1326.542	1307.989			
Step 1	Social adjustment among peers	1230.295	1255.400	1218.295	89.694	3	.000
Step 2	Disruptiveness and conflict	1173.370	1211.027	1155.370	62.925	3	.000
Step 3	Positive self-esteem	1155.309	1205.519	1131.309	24.061	3	.000
Step 4	Negative self-esteem	1151.494	1214.256	1121.494	9.815	3	.020
Step 5	Gender (boys)	1148.924	1224.239	1112.924	8.569	3	.030

Table 4
β Indices (Standard error), Wald, Odds Ratio and Confidence Interval of the multinomial regression model for involvement in bullying

	Not involved vs. Victims	Not involved vs. Aggressors	Not involved vs. Victimized Aggressors
Social adjustment among peers	*β* = -.805** (.234) Wald = 11.822 OR= .447 95% CI = .282 - .707	*β* = -1.440**(.207) Wald = 48.367 OR= .237 95% CI = .158 - .356	*β* = -1.062**(.221) Wald = 23.070 OR= .346 95% CI = .224 - .533
Disruptiveness and conflict	*β* = 1.199**(.222) Wald = 29.039 OR= 3.316 95% CI = 2.144 - 5.129	*β* = .114(.230) Wald = .243 OR= 1.120 95% CI = .713 - 1.760	*β* = .997**(.223) Wald = 19.915 OR= 2.711 95% CI = 1.749 – 4.201
Positive self-esteem	*β* = .265(.343) Wald = .596 OR= 1.303 95% CI = .665 - 2.553	*β* = .724*(.313) Wald = 5.360 OR= 2.064 95 % CI = 1.118 - 3.810	*β* = -.128 (.318) Wald = .163 OR= .879 95% CI = .472 - 1.640
Negative self-esteem	*β* = -.199(.247) Wald = .650 OR= .819 95% CI= .505 - 1.330	*β* = .851** (.209) Wald = 16.657 OR= 2.342 95% CI = 1.556 - 3.524	*β* = .262(.232) Wald = 1.268 OR= 1.293 95% CI = .824 – 2.048
Gender (boys)	*β* = .601*(.303) Wald = 3.948 OR= 1.826 95% CI= 1.008 - 3.309	*β* = .646* (.269) Wald = 5.766 OR= 1.908 95% CI = 1.136 - 3.631	*β* = .709* (.296) Wald = 5.717 OR= 2.031 95% CI = 1.136 - 3.631

Note: * p<.05; ** p<.01

Table 5
Steps of the multinomial regression model for involvement in cyberbullying

Model	Effects	AIC	BIC	-2LL	Chi-Squared	gl	Sig.
Step 0	Intersection	661.284	672.035	655.284			
Step 1	Adjustment to social norms	617.697	639.198	605.697	49.587	3	.000
Step 2	Gender (boys)	610.248	642.499	592.248	13.449	3	.004
Step 3	Negative self-esteem	605.839	648.841	581.839	10.409	3	.015

Table 6
β Indices (Standard error), Wald, Odds Ratio and Confidence Interval of the multinomial regression model for involvement in cyberbullying

	Not involved vs. Victims	Not involved vs. Aggressors	Not involved vs. Victimized Aggressors
Adjustment to social norms	*β* = -.972**(.281) Wald = 11.997 OR= .378 CI 95%= .218 - .656	*β* = -1.614** (.313) Wald = 26.557 OR= .199 CI 95% = .108 - .368	*β* = -1.484**(.350) Wald = 17.955 OR= .227 CI 95% = .114 - .450
Negative self-esteem	*β* = .665**(.244) Wald = 7.429 OR= 1.945 CI 95% = 1.205 - 3.138	*β* = -.094(.307) Wald = .094 OR= .910 CI 95% = .499 - 1.661	*β* = .057(.353) Wald = .026 OR= 1.059 CI 95% = .530 - 2.117
Gender (boys)	*β* = -.385(.315) Wald = 1.498 OR= .680 CI 95% = .367 - 1.261	*β* = 1.138** (.444) Wald = 6.578 OR= 3.119 CI 95% = 1.308 - 7.440	*β* = .777 (.500) Wald = 2.415 OR= 2.175 CI 95% = .816 - 5.797

Note: * p<.05; ** p<.01

2013; Perren & Gutzwiller-Helfenfinger, 2012) could maybe be explained by students' perception of the social relationship established in cyberspace, in which anonymity is possible.

The perception of disruptiveness increases the possibility of being a victim and a bully/victim in bullying, and having a low adjustment to social norms is a risk factor for becoming a victim, an aggressor and a bully/victim in cyberbullying. The influence of these factors supports the important role that the educational context plays in both dynamics (Díaz-Aguado & Martínez-Arias, 2013; Estévez, Murgui, & Musitu, 2009; Ortega-Ruiz, Del Rey, & Casas, 2013), but in different ways, which could explain that behaviours in the phenomena are associated with individual

responsibility, implying that normative adjustment is related to personal variables.

Not only do individual factors affect taking roles in aggressive behaviours such as bullying, but they also act in concert with environmental conditions (Casas, Del Rey, & Ortega, 2013; Hemphill et al., 2012). Just as some studies highlight, the contextual factors tend to carry a greater explicative weight in both phenomena but are slightly more significant in bullying than in cyberbullying (Atik & Güneri, 2013; Feslt & Quandt, 2013; Hemphill et al., 2012; Law et al., 2012), perhaps due to the fact that we cannot understand these phenomena independently from the context in which they occur without considering their physical and relational nature.

It is also interesting to note the role of self-esteem as a risk factor in the phenomena. The findings indicate as risk factors both negative and positive self-esteem in the role of aggressors in bullying. These results are partly consistent with Fanti and Henrich (2014) concerning low self-esteem in aggressors, and are also in agreement with other studies (Brito & Oliveira, 2013) that suggest an association between positive self-esteem and aggressors. The divergent results in self-esteem leads us to consider it an unstable personality trait, more akin to contextual factors that could explain the need to be accepted by the group of peers, which could be interpreted from the perspective that identifies the aggressors of bullying as schoolchildren that are not well adjusted in their relationships with peers, just as Rigby (2003) and Rivers and Noret (2010) found. For cybervictims, negative self-esteem is presented as a risk factor. They are the ones who score the lowest in self-esteem and those who are at most risk, just as Cénat et al. (2014) found. This could be an indication that the personality variables of the subject play an important role in involvement in cyberbullying due to cyberbullying's own defining characteristics, such as the anonymity of the aggressor or the impossibility of defending oneself against attacks that are received through digital devices.

Gender is always a discriminatory variable in the studies on bullying. Being a boy is a significant predictor in victims, aggressors and bully-victims, as made very clear by Carlerby et al. (2012). In cyberbullying, gender is reported as being a risk factor that indicates that students involved as cyber-aggressors are mostly male (Barlett & Coyne, 2014). It may simply be that the gender is rendered less relevant in an environment where interpersonal communication occurs in cyberspace.

In conclusion, not only do individual factors affect involvement in aggressive behaviour, but it is also influenced by environmental conditions (Casas, Del Rey, & Ortega, 2013; Hemphill et al., 2012). Contextual factors tend to carry a greater explicative weight in bullying and personal variables in cyberbullying (Atik & Güneri, 2013; Feslt & Quandt, 2013; Hemphill et al., 2012; Law et al., 2012), perhaps due to the fact that we cannot understand the bullying independently from the social context in which it occurs without considering its physical and relational nature, and in cyberbullying it is necessary to begin to pay attention to the personal variables.

These results should be taken with caution due to the methodological limitations related to the short age range and the transversal nature of analysis. It could be interesting to repeat the study with a larger number of primary school grades over different periods of time. It should be pointed out that the information obtained was self-reported; these results should be complemented with other instruments and informants to avoid bias or the effect of social desirability.

As a future line of research, it would be interesting to see how victimization and aggression in bullying and cyberbullying relate to other contextual factors, such as teaching methodology or parenting styles.

Acknowledgements

This work was produced as part of the project "Estudio de la competencia para la gestión de la vida social y su estabilidad en estudiantes de Primaria y Secundaria en Andalucía", funded by Andalusian Centre of Studies (PRY040/14) (Ministry of the Presidency, Andalusian Community). And "Sexting, ciberbullying y riesgos emergentes en la red: claves para su comprensión y respuesta educativa (EDU2013-44627-P), funded by the National Research Plan I +D".

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