






# Socio-cognitive and emotional factors on perpetration of cyberbullying

## Factores socio-cognitivos y emocionales en la agresión del ciberacoso

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### ABSTRACT

Research on the characteristics shown by children who cyberbully others is scarce. The objective of this research is to know the variables that predict the involvement of youngsters in cyberbullying perpetration. The current study examined the relation between socio-cognitive and emotional variables and cyberbullying perpetration. It examined the cyberbullies' beliefs about moral disengagement towards cyberbullying. It tested also the social support and emotional reactions to cyberbullying with the aim of understanding their association with cyberbullying perpetration. A number of 1,062 teenagers (54% girls) between 12 and 19 years old ( $M=15.20$ ,  $SD=1.91$ ), from six public secondary schools in Castilla-La Mancha (Spain), participated in the study. Results suggest that students who engage in cyberbullying perpetration have higher levels of cyberbullying victimization and bullying aggression when compared with their peers who do not engage in cyberbullying. The findings show that socio-cognitive and emotional variables are important to understand individual differences in engagement in cyberbullying. Result of regressions indicated that perpetration of cyberbullying was positively associated with cyberbullying victimization, bullying aggression, moral disengagement towards cyberbullying, social support and satisfaction expression. In contrast, perpetration of cyberbullying was not associated with negative emotions. Gender and age did not play a significant role in the prediction on perpetration of cyberbullying. Future research should continue to examine predictive factors associated with cyberbullying perpetration.

### RESUMEN

Las investigaciones sobre los ciberagresores son escasas. El objetivo de esta investigación ha sido conocer las variables que predicen la agresión de ciberacoso. El presente estudio examinó la relación entre las variables socio-cognitivas y emocionales con la agresión de ciberacoso. Se examinó la desconexión moral hacia el ciberacoso. Se midió también el apoyo social y las emocionales con el objetivo de conocer su relación con la participación en el ciberacoso. Participaron en el estudio 1.062 adolescentes (54% chicas) con edades entre los 12 y 19 años ( $M=15,20$ ;  $DT=1,91$ ), de seis Institutos de Enseñanza Secundaria de Castilla-La Mancha (España). Los resultados muestran que los estudiantes que participan en la agresión tienen niveles más elevados de ciber-victimización y acoso, en comparación con sus compañeros que no agreden a través de ciberacoso. Los resultados muestran que las variables socio-cognitivas y emocionales son relevantes para entender las diferencias individuales en la participación de ciberacoso. El resultado del análisis de regresión indicó que la ciberagresión estaba positivamente asociada con la cibervictimización, la agresión cara a cara, la desconexión moral hacia el ciberacoso, el apoyo social y la satisfacción por su comportamiento. En contraste, no se asoció con emociones negativas. El género y la edad no desempeñaron un papel significativo para la predicción de la ciberagresión. Por ello, investigaciones futuras deben continuar examinando los factores predictivos asociados a la agresión del ciberacoso.

### KEYWORDS | PALABRAS CLAVE

Cyberbullying, perpetration, bullying, moral disengagement, social support, emotional reactions, adolescence, victims. Ciberacoso, agresión, acoso, desconexión moral, apoyo social, emociones, adolescencia, víctimas.

## 1. Introduction and state of the art

In the last decade, we have heard news about many cases of bullying, humiliation, and violence involving schoolchildren who use the new communication technologies (Smith, Mahdavi, Carvalho, Fisher, Russell, & Tippett, 2008). By extending the traditional definition of bullying, cyberbullying is defined as an aggressive behavior among schoolchildren perpetrated repeatedly through electronic means by a group or individual against a victim who cannot defend himself/herself easily on his/her own (Smith & al., 2008).

Cyberbullying incidence is lower than traditional bullying (Herrera-López, Romera, & Ortega-Ruiz, 2017; Raskauskas & Stoltz, 2007). Slonje & Smith (2008) reported that 5.3% suffered cyberbullying victimization, and 2.8% suffered from it frequently. In Spain, Giménez-Gualdo, Hunter, Durkin, Arnaiz & Maquilón (2015) provide similar data. In a sample of 1,353 youngsters, 8% reported suffering cyberbullying experiences. Regarding gender, the results are not consistent (Garaigordobil, 2011). According to some studies, males are more frequently involved (Perren & Gutzwiller-Helfenfinger, 2012; Slonje & Smith, 2008). In other studies, females report higher levels of victimisation (Giménez-Gualdo & al., 2015; Ortega, Calmaestra, & Mora-Merchán, 2008; Ortega, Elipe, Mora-Merchán, Calmaestra, & Vega, 2009). Other studies do not show any gender differences (Giménez-Gualdo & al., 2015; Smith & al., 2008). Regarding age, some studies show that cyberbullying increases with age (Ortega & al., 2008). Other studies show a decrease in the number of schoolchildren involved (Moore, Huebner, & Hills, 2012), and others report a curvilinear relationship with an increase in the middle years of Secondary Education (Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Ortega & al., 2009). Some studies do even show that there are no differences (Garaigordobil, 2015; Perren & Gutzwiller-Helfenfinger, 2012).

Intervention programmes against bullying have had positive results regarding reduction of victimisation rates but not in terms of perpetration rates (Ttofi & Farrington, 2011). From the point of view of Psychology Groups, it is essential to understand the adversary to resolve any conflict (Gómez & Vázquez, 2015). In this line, in order to predict cyberbullying and to introduce preventive actions, it would be necessary to take into account personal and social variables of those adolescents who perpetrate cyberbullying. Most studies have been conducted from the victims' point of view, and just a few have focused on analysing cyberbullies. For this reason, we believe this study is relevant as it focuses on cyberbullies specifically.

### 1.1. The perpetrator's role

Previous research has shown a strong relationship between the victim's and perpetrator's roles in cyberbullying (Meter & Bauman, 2016). On the other hand, studies analysing face-to-face bullying and cyberbullying have found a correlation in the involvement in both forms of aggression. The results obtained in many studies suggest that both phenomena coexist (Cross, Lester, & Barnes, 2015; Herrera-López & al., 2017). Longitudinal studies show that involvement in bullying behaviors is a predictor of potentially being involved in episodes of cyberbullying (Cross & al., 2015; Sticca, Ruggieri, Alsaker, & Perren, 2013). Cyberbullies are thus prone to also attack their peers face-to-face (Perren & Gutzwiller-Helfenfinger, 2012). Therefore, students perpetrating traditional bullying can also perpetrate cyberbullying (Smith & al. 2008). It also turns out that victims may also be cyberbullies (Smith & al. 2008). Nevertheless, other studies do not support such findings totally (Raskauskas & Stoltz, 2007; Slonje & Smith, 2008).

The ecological model of bullying, adapted to Bronfenbrenner's Model (1977), shows that both individual and social variables may act as risk and protection factors. Indeed, peer relationships may become a risk factor for the involvement in negative interactions (Menesini, Nocentinni, & Paladino, 2012). For this reason, aggression may also be strengthened by group dynamics (Olthof, Goossens, Vermande, Aleva, & van-der-Meulen, 2011). Some studies show that those students who perpetrate bullying do not have any social support (Calvete & al., 2010). This situation is especially relevant in the bully-victim group (Cerezo, Sánchez, Ruiz, & Arense, 2015). Nevertheless, Twyman, Saylor, Taylor & Comeaux (2010) state that having a group of friends may also promote cyberbullying. Indeed, Olthof & al. (2011) stated that those students who use bullying to maintain their position within their respective groups are seen as socially popular and enjoy the support of their group.

Bandura's Social Cognitive Theory (1999) identifies moral disengagement as a cognitive process through which people justify their aggressive behavior or distort its potential impact on other people. In a longitudinal study, Williams & Guerra (2007) found that those students who seem to accept normative beliefs related with bullying are more involved in this type of behavior; this is also a predictor positively related with cyberbullying. Such relationship with cyberbullying was also verified in other studies (Almeida, Correia, Marinho, & Garcia, 2012;

Bauman, 2010; Meter & Bauman, 2016). Nevertheless, other studies did not find such relationship. For example, Perren & Gutzwiller-Helfenfinger (2012) reported that moral disengagement was only significant predicting traditional bullying.

In addition to moral disengagement, research is focused on the study of emotional reactions as potential indicators of moral and personal reasons for such aggressive behavior (Menesini, Palladino & Nocentini, 2015). The existing link between low levels of guilt and grief may legitimise negative behaviors (Perren & Gutzwiller-Helfenfinger, 2012). If aggressors feel proud of or indifferent to their behaviors, these emotions, in turn, contribute to an increase in moral disengagement (Menesini & al., 2003). Similarly, Menesini & al. (2015) reported that the absence of emotions for their victims and the positive emotions experienced by perpetrators are the positive feedback to them that strengthens their bullying behavior. Boulton & Underwood (1992) reported that victims of school bullying thought that their perpetrators felt well and happy about their behavior.

Taking into account the conflicting data collected in different research on the variables linked to cyberbullying perpetration, the need to conduct further research in this direction is evidenced. Getting to know the variables that may predict the continuation of face-to-face bullying by means of the new technologies would be a very important step forward to prevent it and take all necessary steps against it.

Given the relevance of the socio-cognitive and emotional variables in the perpetration role and the absence of studies that analyse all these variables together, the objective of this study is to jointly analyse the link between cognition (moral disengagement), social support and personal variables (involvement in bullying and emotions) in cyberbullying perpetration.

The objective of this study is to identify the relationships between variables previously reviewed and cyberbullying perpetration. Therefore, we will study the correlation between cyberbullying perpetration and involvement in traditional bullying and cyberbullying victimisation, as well as social support perceived by perpetrators, social disengagement, and the emotions linked to their behavior. We will then establish the predictive value of the variables studied in cyberbullying perpetration.

Due to the inconsistency of the data collected from prior research, we do not hypothesize any relationship between cyberbullying and gender and age. The research question is: do gender and age have any impact on cyberbullying perpetration? Regarding bullying, we expect that traditional bullying and cyberbullying victimisation will be a significant predictor of cyberbullying perpetration (H1). Moral disengagement will be positively related to cyberbullying perpetration (H2). Regarding the social context, we expect that cyberbullies feel supported by their peers (H3). Based on previous literature, we expect that cyberbullies do not feel guilty and feel pleasant emotions as a result of their behaviour (H4).

## 2. Material and methods

### 2.1. Participants

The sample was incidental and made up of 1,062 students of Secondary Education, Vocational Education and Years 12 and 13. 46% were men and 54% were women, aged between 12 and 19 years old ( $M=15.20$ ,  $SD=1.91$ ). 47.8% were students of a lower cycle of secondary education ( $n=508$ ), 35.4% were students of a higher cycle of secondary education ( $n=376$ ), and 16.6% were students of Years 12 and 13 ( $n=178$ ). Six public Secondary Schools in the region of Castilla-La Mancha participated in this study: two from a rural environment and

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two from the provincial capital. 91% was born in Spain. Concerning the immigrant students, more than 50% come from Eastern Europe ( $n=52$ ), from Romania mostly, and 17% come from Latin American countries.

## 2.2. Instruments

The Bullyharm (Hall, 2016) was used to measure cyberbullying. The scale comprises 14 Likert-type items for each subscale of perpetration and victimisation with a rating response that ranges from 0 to 3: 0=never happened to me; 1=it happened to me once or twice; 2=it happened to me at least once a week; and 3=it happened to me twice or more times a week. Students were asked to determine their frequency of participation in certain behaviors in the last month. The internal consistency of the scale is optimal, regarding traditional bullying for perpetration  $\alpha=.81$  and  $\alpha=.86$  for victimisation, to measure cyberbullying,  $\alpha=.79$  for victimisation and  $\alpha=.64$  for perpetration.

Social support was measured using the subscale of perceived social support by friends from the AFA-R scale (González & Landero, 2014). It consists of seven Likert-type items with five-point response options ranging from 1 to five: 1=never; 2=rarely; 3=sometimes; 4=often; 5=always. The consistency of the subscale was high,  $\alpha=.88$ .

Given the relevance of the socio-cognitive and emotional variables in the perpetration role and the absence of studies that analyse all these variables together, the objective of this study is to analyse jointly the link between cognition (moral disengagement), social support and personal variables (involvement in bullying and emotions) in the cyberbullying perpetration.

The questionnaire on moral disengagement towards cyberbullying by Bussey, Fitzpatrick & Raman (2015) was employed. It consists of eight Likert-type items regarding moral disengagement towards cyberbullying behaviours, with five options: 1=strongly disagree; 2=disagree; 3=not sure; 4=agree; 5=strongly agree. The consistency of the subscale was appropriate,  $\alpha=.68$ .

A scale was built to evaluate the emotional component of cyberbullies following the structure of previous research

(Giménez-Gualdo & al., 2015; Ortega & al., 2009). Students had to identify the emotional intensity of each of the emotions proposed according to their cyberbullying experience. It was measured using a Likert-type scale with five items ranging from 1=not at all to 5=very much. Following the theoretical review performed, guilt was included (Perren & Gutzwiller-Helfenfinger, 2012), as it had already been included in Ortega & al. (2009) and Caravita, Colombo, Stefanelli & Zigliani (2016). Sadness was also included considering that it is highlighted in most studies about the emotional component of bullying. Following the results obtained by Menesini & al. (2015), the absence of emotions (feel nothing) and positive emotions were included. No evaluation of emotions was found in prior research. Therefore, it was considered appropriate to include the opposite of negative emotions. In this line, fun was selected as opposite to sadness and satisfaction as opposite to guilt. Boulton and Underwood (1992) reported that bullies felt well, and we also included the well-being element and its opposite, discomfort. Discomfort had already been used by Ortega & al. (2009) and Horner, Asher, and Fireman (2015). A pilot study was conducted before using it in order to determine whether the students understand the terms proposed or not and no problems were detected. The reliability of pleasant emotions amounted to  $\alpha=.68$ , and the reliability of unpleasant emotions amounted to  $\alpha=.86$ .

## 2.3. Design

The research has a cross-sectional design, retrospective ex-post with multiple measurements.

## 2.4. Procedure

Attending to ethical considerations, in the first place we obtained the informed consent of the minors' parents. 1.5% of the families did not respond to our request, and their children did not participate in the study.

The questionnaire was distributed in the classrooms by agreement with the headmasters and the teachers of the

schools. The objective of the study was explained to the students, and they were informed that their participation was voluntary and that their answers would remain anonymous. The average time to fill in the battery of tests was 20 minutes.

## 2.5. Data analysis

Participant's categorization as victims or perpetrators was made considering answers equal or above 1 (it happened to me once or twice in the last month) in the bullying questionnaires. After setting the contrasting groups, the Pearson correlation coefficient was conducted to identify the relationships between cyberbullying perpetration and the study variables. Student t-tests were conducted to verify the existence of differences in such variables between cyberbullies and non-involved students. Finally, a logistic regression analysis was performed to analyse the predictive value of the variables included in this study. A step analysis was conducted, including gender and education cycle as control variables. Bullying variables were included in the first step; the cognitive variable of moral disengagement was included in the second step; then the variable of the social context related with the perception of support from their classmates was included. Emotions were included in the last step. All the analyses were conducted using the statistical package SPSS (version 23) at a significance level of .05.

## 3. Results

8.2% of boys and 5.1% of girls ( $\chi^2=4.23$ ,  $p<.05$ ) are involved in cyberbullying perpetration. Regarding the education cycle, 6.3% of students of the first cycle (Year 8 and 9) reported cyberbullying perpetration, 7.2% in the case of students of the second cycle (Year 10 and 11) and in Year 12 and 13, 5.6% ( $\chi^2=0.55$ ,  $p=.760$ ) reported being a cyberbully.

### 3.1. Relationship between the variables of this study

The Pearson correlation analyses show that there are statistically significant correlations between cyberbullying perpetration, cyberbullying victimization and bullying involvement as a perpetrator or a victim. Moral disengagement, pleasant emotions, and indifference are also significantly correlated to cyberbullying perpetration. However, the perception of support from friends and negative emotions are not significantly correlated (Table 1).

### 3.2. Differences according to involvement in cyberbullying perpetration

As shown in table 1, cyberbullies reported higher levels of bullying victimization, and perpetration, as well as cyberbullying victimization than non-involved students.

Moral disengagement is also significantly higher among cyberbullies. There is also a significant difference in perception of support from their friends, which is lower among cyberbullies. Regarding emotions, cyberbullies link their

**Table 1. Pearson correlations means and standard deviations according to cyberbullying perpetration, Student t-test**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. CP	--												
2. BV	.258***	--											
3. BP	.428***	.526***	--										
4. CV	.389***	.477***	.291***	--									
5. MD	.233***	.185***	.276***	.149***	--								
6. SF	-.059	-.152***	-.086**	-.118***	-.156***	--							
7. F	.130***	.135***	.116***	.084**	.154***	-.32	--						
8. W	.168***	.165***	.132***	.156***	.161***	-.018	.775***	--					
9. Sf	.214***	.179***	.198***	.106***	.193***	-.043	.615***	.648***	--				
10. Gu	.044	.140***	.146***	.110***	.061	.005	.026	.058	.093**	--			
11. Sa	-.007	.063*	-.054	.082**	-.152***	.043	-.140***	-.131***	-.114***	.300***	--		
12. Dis	-.003	.082**	.017	.088**	-.149***	.064*	-.168***	-.151***	-.145***	.357***	.571***	--	
13. If	.162***	.095**	.110***	.068*	.106***	-.032	.052	.045	.136***	.052	-.055	.008	--
M ca	1.16	1.43	1.15	2.60	3.10	2.63	2.90	3.09	2.18	2.91	2.72	2.54	
SD ca	0.62	0.99	0.96	.095	1.44	1.68	1.57	1.75	1.60	1.64	1.55	1.97	
M nipc	0.17	0.35	0.07	1.65	3.80	1.63	1.51	1.37	1.73	2.90	2.62	1.40	
SD nipc	0.25	0.42	0.28	0.49	0.96	1.18	1.13	0.92	1.10	1.50	1.47	0.99	
t		12.16***	7.99***	11.83***	6.34***	-2.38*	3.06**	4.02***	6.03***	1.31	0.02	0.23	3.74***

Note. CA=cyberbullying perpetration; BV=bullying victimisation; BP=bullying perpetration; CV=cyberbullying victimisation; MD=moral disengagement; SF=support from friends; F=fun; W=well-being; Sf=satisfaction; Gu=guilt; Sa=sadness; Dis=discomfort; If=indifference; M=mean; SD=standard deviation; t=Student t-test; cp=cyberbullying perpetration; nipc=not involved in cyberbullying perpetration.

Measuring scale: 1-4=from 0 to 3; 5-13=from 1 to 5

\* $p<.05$ ; \*\* $p<.01$ , \*\*\* $p<.001$

behavior with pleasant emotions. Cyberbullying perpetration is associated with fun, well-being, and satisfaction. They also feel indifference to a greater extent. On the contrary, there are no statistically significant differences between cyberbullies and uninvolved students in terms of unpleasant emotions (guilt, sadness, and discomfort).

### 3.3. Predictive value of the study variables

The regression analysis was performed to explain cyberbullying perpetration among youths. Gender and education cycle were included as control variables. The results obtained (table 2) confirm the predictive value of the variables analysed, which explain 21% of the cyberbullying perpetration.

Variables	Model 1		Model 2		Model 3		Model 4	
	OR	CI 95%	OR	CI 95%	OR	CI 95%	OR	CI 95%
Gender*	0.62	0.34-1.12	0.69	0.37-1.26	0.62	0.33-1.15	0.65	0.34-1.24
Cycle	1.29	0.87-1.91	1.40	0.93-2.10	1.36	0.91-2.05	1.38	0.90-2.12
CV	6.56***	2.51-17.14	5.46***	2.00-14.86	6.10***	2.19-16.99	6.96***	2.41-20.06
BV	1.53	0.78-3.03	1.54	0.78-3.04	1.53	0.76-3.05	1.19	0.57-2.52
BP	3.06***	1.54-6.05	2.53**	1.24-5.13	2.67**	1.29-5.50	2.99**	1.42-6.30
MD			3.44**	1.56-7.58	3.62**	1.62-8.07	3.30**	1.41-7.70
SF					2.08*	1.11-3.91	2.14*	1.12-4.10
Fun							1.98	0.65-6.05
Well-being							0.20	0.04-1.11
Satisfaction							6.85**	1.75-26.78
Guilt							2.05	0.61-6.94
Sadness							1.05	0.43-2.53
Discomfort							0.73	0.26-2.04
Indifference							2.35	0.86-6.42
-2LL	368.20		359.95		354.48		337.95	
Nagelkerke R <sup>2</sup>	.12		.14		.16		.21	
Model $\chi^2$	41.90***		50.15***		55.62***		72.15***	

Note. CV=cyberbullying victimisation; BV=bullying victimisation; BP=bullying perpetration; MD=moral disengagement; SF=support from friends / \* Gender (1)=male / \*p<.05; \*\*p<.01, \*\*\*p<.001

More specifically, cyberbullying victimisation ( $\beta=1,94$ ), bullying perpetration ( $\beta=1,10$ ), moral disengagement ( $\beta=1,19$ ), perception of support from friends ( $\beta=0,76$ ) and satisfaction ( $\beta=1,92$ ) are statistically significant variables associated with cyberbullying perpetration. On the other hand, bullying victimisation, indifference, fun, well-being and unpleasant emotions are not significant. Likewise, gender and education cycle were not significant in any model.

## 4. Discussion and conclusions

The objective of the present study was to analyse the relationship between cognitive variables (moral disengagement), social context variables (perceived social support) and personal variables (involvement in bullying and emotions) and cyberbullying perpetration. Most studies have focused on analysing the situation of victims, but we believed it was also important to know what variables may be determining perpetration in cyberbullying. In sum, we wanted to analyse what social, cognitive and emotional variables lead some youth to engage in bullying behaviours outside the school through the digital technologies.

Research on the prevalence of cyberbullying has shown different prevalence rates, which frequently depends on the measures used (Romera & al., 2016; Zych, Ortega-Ruiz, & Marín-López, 2016). The results of this research show that 8.2% of male and 5.1% of female youth are cyberbullies. Such percentages are in line with previous research (Slonje & Smith, 2008; Giménez-Gualdo & al., 2015). According to previous studies (Perren & Gutzwiller-Helfenfinger, 2012; Slonje & Smith, 2008), male youth are significantly more involved. However, there were no differences in involvement reported by the students according to their education cycle (Garaigordobil, 2015; Perren & Gutzwiller-Helfenfinger, 2012). Nevertheless, none of these two variables were included in the regression with a significant explanatory relevance on cyberbullying perpetration.

The correlational analysis confirms the existing relationship between bullying and cyberbullying behaviours. Such relationship had already been reported in previous studies (Cross & al., 2015; Herrea-López & al., 2017). Nevertheless, according to the regression analysis, only traditional bullying and cyberbullying victimisation are significant for cyberbullying perpetration. Therefore, H1 is partially supported.

Regarding social support, cyberbullies in this study were significantly less supported than non-perpetrators.

Nevertheless, they felt encouraged if we take into account that they were above the theoretical mean. In line with prior studies on school bullying (Salmivalli, 2010), perpetrators are directly or indirectly supported by their classmates (for example, by seeing it as something fun and unimportant, even by encouraging them). Additionally, the new technologies may also become a new source of online support (Caravita, Gini, & Pozzoli, 2012). Nevertheless, according to Romera & al. (2016), the fact that cyberbullies feel supported does not imply that they are liked by their classmates. They may be popular and accepted by their classmates but for fear of being victimised, not due to a relationship of sympathy towards them.

Social support has proven itself to be a relevant variable in cyberbullying perpetration (H3). This result may have relevant implications for intervention in the classroom. Working together would be an option, trying to find the best way to provide social support to students so that they ignore perpetrators. We should prevent the problem of two-way social relationships, understood as those situations where it is believed that support leads to an increased probability that the youngster perpetrates cyberbullying. It could also be the case that the lack of support to the perpetrator may lead him/her to increase bullying against those classmates who ignore him/her. Intervention efforts could create protection conditions through peer groups and adults available and ready to support them. Interventions aimed at enhancing relationships among students and between teachers and students may also be a useful way to reduce the incidence of cyberbullying. Particularly, the teacher's support intervention, combined with the assistance of classmates, invigorates the protective effect of social support and may reduce the support provided to cyberbullies without fear of being victimised. From this line of study, the objective of the intervention should focus on enhancing communication between education agents.

In line with prior research, cyberbullies justify violence (Calvete & al., 2010). Cyberbullies reported higher levels of moral disengagement (Bauman, 2010; Meter & Bauman, 2010), which is a relevant predictor of their behavior (H2). Nevertheless, moral disengagement towards cyberbullying is not related to guilt. Prior research had already reported that the distance between the perpetrator and the victim generated by cyberbullying could mitigate perpetrator's guilt (Slonje & Smith, 2008) and dissociates responsibility for their actions (Almeida & al., 2008). These facts are used by some authors to explain the absence of any relationship between cyberbullying and moral disengagement in their research (Perren & Gutzwiller-Helfenfinger, 2012). It should be noted that a moral disengagement scale specifically aimed at cyberbullying was applied (Bussey & al., 2015), and this may explain the results obtained.

Only satisfaction was significant in the regression analysis, which means that the study hypothesis (H4) was partially supported. This result should be interpreted with caution, as satisfaction may be derived –directly or indirectly– from support from peers. No significant differences were found in these variables between cyberbullies and participants not involved in cyberbullying. Caravita & al. (2012) already reported that bullies have a negative perception of their behavior; for this reason, they need to trigger the moral disengagement mechanism. It seems that this also happens to cyberbullies: there are no significant differences in terms of sorrow or unrest, nevertheless, they perpetrate the aggression. It seems that they need to justify their behavior, which they see negatively, and trigger cognitive mechanisms of moral disengagement to feel good about themselves (Raskauskas & Stoltz, 2007). As a matter of fact, they feel indifference, fun, well-being or satisfaction for their behavior, which makes them repeat this aggressive behavior (Giménez-Gualdo & al., 2015). It is essential to attach vital importance to prevention and intervention programmes in order to break the aggression/fun nexus once and for all. Nevertheless, we cannot forget the impact of socialisation in the acquisition of social values; therefore, we should ask ourselves about the role played by violence in conflict resolution in our society. We believe that it is also important to attach a critical analysis of fun and satisfaction linked to aggression in such programmes, beginning with an analysis of many of the videogames played by youngsters in their free time that generate fun as a result of the aggressions they contain. However, adolescents state that fun lies in online conversations held as they are playing (Muros, Aragón, & Bustos, 2013). Pérez-Latorre (2012, 128) stated that “videogames always say interesting things about ourselves, about our world and our relationship with it”. Therefore, it would be interesting to analyse the existing relationship between playing video games with violent behaviors and involvement in cyberbullying.

This study has several limitations that should be addressed in future research. One important limitation is the cross-sectional design, as we cannot draw any conclusions on the direction of the effects. It would be necessary to conduct longitudinal studies to confirm the data obtained. As the sample is Spanish, it is obvious that it has certain cultural biases that cannot be present in other international studies and that are determining the results found. Self-reporting makes us cautious when making any generalisation related to the weight of variables when determining to

cyberbullying. On the other hand, some studies have reported the existing link between social support and the emotional perception of fun in addition to the absence of guilt (Perren & Gutzwiller-Helfenfinger, 2012), and moral disengagement (Caravita & al., 2012). Moral disengagement is in turn related to the emotional factors of bullying (Menessi & al., 2003) and to the absence of guilt in cyberbullying (Perren & Gutzwiller-Helfenfinger, 2012). As we can see, these are complex relationships that should be further studied, and research about such interactions should be conducted using structural models. In last place, this study focuses on cyberbullies exclusively. Further research should analyse poly-aggressive students who perpetrate bullying and cyberbullying to harass their classmates, and the group of bully-victims.

Nevertheless, although this is an exploratory study, our results go in the direction of an interesting line of research that may establish an influence framework of socio-cognitive and emotional variables to determine cyberbullying, if such trends are confirmed in other studies. In line with previous research (Romera & al., 2016), the

results obtained allow for the conclusion that the way peer groups manage their emotional and social lives may explain the situation of cyberbullying among adolescents. Future research should identify the specific factors responsible for aggression through the new technologies to manage and mitigate the impact of such aggressions.

In this sense, analysing the way students construe and manage cognitive, social and emotional information and the way it is regulated could be particularly interesting for intervention. Nevertheless, these components have not been sufficiently addressed so far (Della-

Cioppa, O'Neil, & Craig, 2015). Preventive actions should focus on the permissive beliefs adolescents have towards aggression. The objective of this intervention should be trying to neutralise those cognitive and emotional aspects strengthening bullying that have been internalized or are in the process of development.

Despite the limitations indicated above, this is the first study that analyses the existing relationship between bullying, socio-cognitive and emotional variables, and more specifically, cyberbullying perpetration. We believe this study provides very significant facts on prediction of cyberbullying and may have very strong implications for intervention. In conclusion, perpetrating bullying against classmates in "real" space, face to face, being cyberbullied, feeling supported by friends, justifying aggressive behaviours through moral disengagement, combined with satisfaction for perpetrating aggression against peers explains a high proportion of aggressive behaviors in cyberspace.

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**Social support has proven itself to be a relevant variable in cyberbullying perpetration. This result may have relevant implications for intervention in the classroom. Working together would be an option, trying to find the best way to provide social support to students so that they ignore perpetrators. We should prevent the problem of two-way social relationships, understood as those situations where it is believed that support leads to an increased probability that the youngster perpetrates cyberbullying.**



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