

Victimization in the school, digital leisure and irritability: analysis using structural equations

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Abstract

Victimization in school represents a worrying phenomenon given the negative consequences associated with it, such as states of depression or anxiety which are related to digital leisure habits. This descriptive and cross-sectional study, which was conducted on a sample of 1038 students of third cycle of Primary Education ($M = 11,33$; $SD = 1,27$), aims to define and contrast an explanatory model about the use of television and video games based on victimization. The instruments employed were the School Victimization Scale (Mynard & Joseph, 2000), the Questionnaire of Experiences related to Video games (Chamarro et al., 2014) and an ad hoc questionnaire for the registration of variables related to digital leisure. The structural model was correctly developed and with good reliability. The results showed positive relationships between the three types of victimization, physical victimization and use of video games and television, and verbal victimization and use of television. Furthermore, digital leisure habits were positively associated with levels of irritability, which shows how bullying can act as a risk factor in the problematic use of video games and television. Victimization may constitute a risk factor in the pathological consumption of screen leisure and irritability states.

Keywords: schoolchildren; bullying; victimization; television; video games.

Resumen

La victimización en la escuela representa un fenómeno preocupante dado las consecuencias negativas que se le asocian, como son estados de depresión o ansiedad, los cuales guardan relación con los hábitos de ocio digital. Se realizó un estudio descriptivo de tipo transversal, realizado en una muestra de 1038 escolares de tercer ciclo de Educación Primaria ($M = 11,33$; $DT = 1,27$), el cual persigue como principal objetivo contrastar un modelo explicativo del uso de televisión y videojuegos en función de la victimización. Se emplearon como principales instrumentos la Escala de Victimización en la Escuela (Mynard y Joseph, 2000), el Cuestionario de Experiencias Relacionadas con Videojuegos (Chamarro et al., 2014) y un cuestionario ad hoc para el registro de variables vinculadas al ocio digital. El modelo estructural se ajustó correctamente. Se obtuvieron relaciones positivas entre los tres tipos de victimización, la victimización física y el uso de videojuegos y televisión, y la victimización verbal con el uso de televisión. Los hábitos de ocio digital se asociaron positivamente con los niveles de irritabilidad de los escolares, lo que muestra como el acoso escolar podría actuar como factor de riesgo en el ocio digital. Las situaciones de victimización pueden constituir un factor de riesgo en el consumo patológico de ocio de pantalla y estados de irritabilidad.

Palabras clave: escolares; acoso escolar; victimización; televisión; videojuegos.

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The term “harassment” within schools or “bullying” refers to long-term multifaceted aggressions – physical, psychological or

relational – which take place within schools between peers, creating situations of abuse and defencelessness which are hard for

victims to escape by themselves (Hiduja & Patchin, 2010; López & Sabater, 2014). In regard to the aforementioned, victimization is a construct immediately related to harassment within schools. This term is defined by Turner, Shattuck, Finkelhor, and Hamby (2017) as the condition by which the individual considers itself a victim of some kind of transgressive situation – physical abuse, family violence, social isolation, etc. – which produces vulnerability and traumatic effects, especially when it has been suffered since childhood, which is the case of harassment within schools (Hiduja & Patchin, 2010; Turner et al., 2017).

Due to the aggravation of this situation in recent times (Benbenishty, Avi, Roziner, & Wrabel, 2016), and to the negative effects associated with it – low self-esteem, stress, depression, anxiety, suicide, etc.- (Turner, Exum, Brame, & Holt, 2013; Boxer, Groves, & Docherty, 2015), its study, prevention and treatment has become a worldwide vital issue. From this perspective, studies such as those by Carrasco and Trianes (2015) or Vilches (2015) highlight the importance of social and emotional adaptation as a preventive measure, since these intolerable situations could bring about maladjustment originated from inadequate upbringing or poor inclusive actions in the school.

Multiple risk factors exist that can be associated with bullying, such as antisocial behaviour patterns, limited self-regulation ability, lack of empathy or school failure in the aggressor's case (García, Pérez, & Nebot, 2010; Delisi, Vaughn, Gentile, Anderson, & Shook, 2013), and an introvert character and different physical, cognitive or cultural features in the case of the victim (Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012). Studies such as those by Ferguson, Olson, Kutner, and Warner (2010) or Vallejos and Capa (2010) demonstrate the connection between the consumption of TV and violent video games and the levels of aggressiveness in individuals, thus appearing a new risk factor due to the significant amount of time spent by schoolchildren using screen digital

leisure (Boxer et al., 2015; Chacón, Castro, Zurita, Espejo, & Martínez, 2016).

Authors such as López and Sabater (2014) point out that young people can be easily influenced in their behaviour patterns, especially through audiovisual media as an exosystem. The reason being that TV offers models of behaviour which they are willing to follow, especially those boys and girls who have not gone through a standardised process of socialization (Ferguson et al., 2010; López & Sabater, 2014; Vilches, 2015). In line with this, Delisi et al. (2013) recall diverse theories about violent behaviour which verify that learning and mental processes involved in multimedia violent contents can cause subsequent aggressive behaviour, since they entail a lack of sensitivity towards violent situations, sensing them as positive emotions. In fact, constant exposure is related to psychological and physiological decrease of fear and anxiety of violence, thus leading to cognitive and affective consequences such as perceiving severe injuries as minor, paying attention to violent events, losing empathy for victims or becoming violent towards others (Dittrick, Beran, Mishna, Hetherington, & Shariff, 2013; Hasan, Bègue, Scharrow, & Bushman, 2013; Boxer et al., 2015).

A recent study in this field is the one conducted by Watt, Fitzpatrick, Derevensky, and Pagani (2015), who analysed the associations between schoolchildren's use of TV and their levels of victimization, showing that levels of bullying experienced by victims were 11% higher for those who watched TV more. Similarly, Boxer et al. (2015) study the negative effect of the use of video games on children and teenager's academic performance and social abilities. Additionally, Martínez, Betancourt and González (2013) found a positive relation between the use of video games, and depression symptoms and domestic violence in young teenagers.

In this sense, it has been demonstrated how children who have been bullied might present cognitive problems, sometimes

connected with a problematic use of sedentary digital leisure. This study is based on this fact.

Objectives

The main objectives of this study are:

- a) To analyse and establish relations between the different kinds of victimization and variables associated with the excessive use of video games and television.
- b) To contrast a structural model of equations that could explain sedentary digital leisure in relation to levels of victimization and its dimensions in a sample of schoolchildren.
- c) To analyse the effect of victimization on the use of TV and video games, as well as the effect of the use of these devices on levels of irritability and on the replacement of activities.

Methods

Design

The study conducted was quantitative, non-experimental, ex post-facto, descriptive, exploratory, and cross-sectional with only one measurement on a single group.

Participants

The sample was made up of 1038 schoolchildren in the third cycle of Primary Education from 9 public and charter schools in Granada (Spain), all of them chosen by random and cluster sampling considering the schools' typologies. Participants' distribution according to gender was 49.5% (n=514) boys and 50.5% (n=524) girls, all aged between 10 and 13 (M = 11.33; SD = 1.27).

Table 1 - *Characteristics of the sample*

	N	%
Gender		
Male	514	49,5
Female	524	50,5
Type of school		
Public	578	55,7
Charter	460	44,3

Instruments

In the present research study three instruments were used, the School Victimization Scale, the Questionnaire of Experiences related to Video games and an Ad Hoc questionnaire for the registration of socio-demographic variables such as gender, age and type of school the participants attended.

School Victimization Scale. This questionnaire was designed by Mynard and Joseph (2000) and adapted to Spanish by Cava, Musitu and Murgui (2007). It is made up of 20 items in a Likert scale, ranging from (1 = Never; 4 = Always), showing three kinds of victimization; Physical Victimization (Items 1+9+13+15), Verbal Victimization (Items 3+4+6+11+16+20) and Relational Victimization (Items 2+5+7+8+10+12+14+17+18+19). In the original study, Mynard and Joseph (2000) obtained an internal consistency (Cronbach's Alpha) of $\alpha = 0.77$. In the present research study, a coefficient higher than $\alpha = 0.91$ has been achieved.

Questionnaire of Experiences related to Video games (CERV). The original scale was designed by Chamarro et al. (2014) for young teenagers. This instrument has 17 negative items in a Likert scale ranging from 1 = Hardly Ever to 4 = Almost Always. This questionnaire helps identify the problematic use of video games by dividing the variable into tertiles. The internal consistency for the scale in this research study was $\alpha = 0.89$, higher than the one in the original study by Chamarro et al. (2014) ($\alpha = 0.87$).

Ad Hoc Questionnaire. Used for the registration of socio-demographic variables (gender, age, school). Additionally, other variables related to digital leisure are included; television (establishing the number of daily hours children devote to watching TV); irritability (grading bad mood when children cannot use digital leisure, using

a Likert scale ranging from 1 to 10); and replacement (indicating the extent to which children stop doing other activities in order to play video games or watch TV, using a Likert scale with 10 options).

Data collection

In order to carry out this research project and the collection of data, the principals of the schools that had accepted taking part in the project were addressed an explanatory letter written by the department of Didactics of Music, Plastic and Corporal Expression of the University of Granada, giving details about the nature of the study and requesting participation of the schools. Those schools that accepted taking part in the project requested informed consent of participation from the students' legal tutors.

The instruments previously described were applied in March 2016. This process was carried out in the schools during school hours, teachers and researchers being constantly available in order to ensure correct application of the questionnaires. The students' right to confidentiality was observed, being also guaranteed that data would be only used for scientific purposes. Later, the schools were also informed about the results of the study. 78 questionnaires were invalidated because they were not properly completed.

This research project was approved by the research committee of the University of Granada and has observed the ethical principles for research of the Declaration of Helsinki 1975.

Data analysis

Basic statistics were produced using software IBM SPSS® in its version 22.0, using means, frequencies and comparison of means by T-test. In order to analyse relations and effects between the variables studied in the structural model, the program AMOS® 23.0 was used, obtaining a confidence interval of 95% with an error probability of 5%.

Bearing in mind the stated objectives, a theoretical assumption is developed supporting this work through the following hypothetical model (Figure 1) with factors; Factor 1: Relational Victimization (RV), Factor 2: Physical Victimization (PV), Factor 3: Verbal Victimization (VV), Factor 4: Daily hours watching TV (Television), Factor 5: Problematic use of video games (Video games), Factor 6: Level of irritability when not being able to use digital leisure (Irritability), Factor 7: Replacement of other activities with digital leisure (Replacement).

Relational, physical, and verbal victimization act in the designed model as exogenous variables, whereas the use of TV, video games, levels of irritability and replacement of activities act as endogenous variables (receive the influence of other variables and need prediction error variables). Double-headed arrows are used (co-variances) in order to connect exogenous variables in the model, whereas single-headed arrows show the effects between variables (direct and indirect). Likewise, the maximum likelihood (ML) method is used for parameter estimation, since it is invariant in the different types of scales.

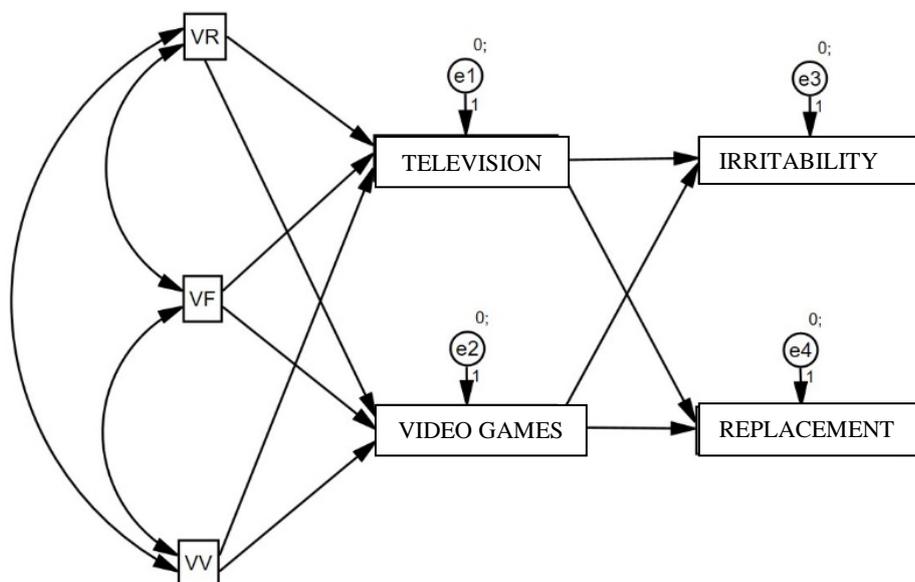


Figure 1. Hypothetical model of victimization and its relation with the use of video games and TV

Fit indices of the structural model were checked in order to verify its compatibility with the empirical information obtained. Marsh's goodness of fit (2007, p.785) was considered in order to establish fit reliability. This way, non-significant values in the Chi-square test imply a good fit. On the other hand, the Normed Fit Index (NFI) should be higher than 0.90. Likewise, the Comparative Fit Index (CFI) will be acceptable if it is higher than 0.90 and excellent if higher than 0.95. The Incremental Fit Index (IFI) will be acceptable if its coefficient is higher than 0.90 and excellent if higher than 0.95. Finally, the root mean square error of approximation (RMSEA) will be excellent if lower than 0.05 and acceptable if lower than 0.08.

Results

Table 2 shows basic descriptors of the studied variables according to gender of the sample. In relation to relational victimization,

there is an average value of 1.77 ± 0.59 for males and 1.73 ± 0.59 for females, not finding any significant differences. In the case of physical victimization there are statistically significant differences ($p = 0.009$), boys having a higher average value than girls (1.68 ± 0.66 vs. 1.54 ± 0.55). No statistically significant differences are found in verbal victimization, with an average value of 1.96 ± 0.67 for boys and 1.94 ± 0.67 for girls. On the other hand, statistically significant differences were observed in the use of video games ($p = 0.001$) and television ($p = 0.044$), boys having a higher average value in both (36.11 ± 7.31 vs. 33.82 ± 6.78 and 2.94 ± 1.30 vs. 2.72 ± 1.18 , respectively). Finally, it has to be pointed out that both boys and girls obtained the same value in replacement of activities (5.95), with no significant differences, whereas in irritability ($p = 0.001$) higher values were observed in boys (7.05 ± 2.45 vs. 6.40 vs. 2.20).

Table 2 - Basic descriptors of the sample according to gender

	Gender	Mean	SD	Levene (F)	Levene (Sig.)	T-test (Sig.)
Relational victimization	Male	1.77	0.59	0.224	0.636	0.489
	Female	1.73	0.59			
Physical victimization	Male	1.68	0.66	11.955	0.001	0.009
	Female	1.54	0.55			
Verbal victimization	Male	1.96	0.67	0.221	0.638	0.696
	Female	1.94	0.67			
Video games	Male	36.11	7.31	4.016	0.046	0.001
	Female	33.82	6.78			
Television	Male	2.94	1.30	7.477	0.006	0.044
	Female	2.72	1.18			
Replacement	Male	5.95	1.95	0.135	0.714	0.985
	Female	5.95	3.55			
Irritability	Male	7.05	2.45	37.334	0.000	0.001
	Mujer	6,40	2,20			

A good fit was obtained in all evaluation indices of the structural equation model. Chi-square indicated a significant value of p ($\chi^2 = 31.286$; $df = 8$; $p < 0.001$), although it must be noted that this index has no upper limit. Therefore, it cannot be interpreted in a standardised way, in addition to the problem of its sensitivity towards sample size. Thus, other standardised fit indices less sensitive to sample size are used. The comparative fit index (CFI) had a value of 0.978, thus being

excellent. The normed fit index (NFI) had a value of 0.970 and the incremental fit index (IFI) of 0.978, both excellent. The root mean square error of approximation (RMSEA) had an adequate value of 0.075.

Table 3 and Figure 2 show estimated values of the parameters in the model. These must have an adequate magnitude and effects must be significantly different from zero. Additionally, improper estimations such as negative variances should not be found.

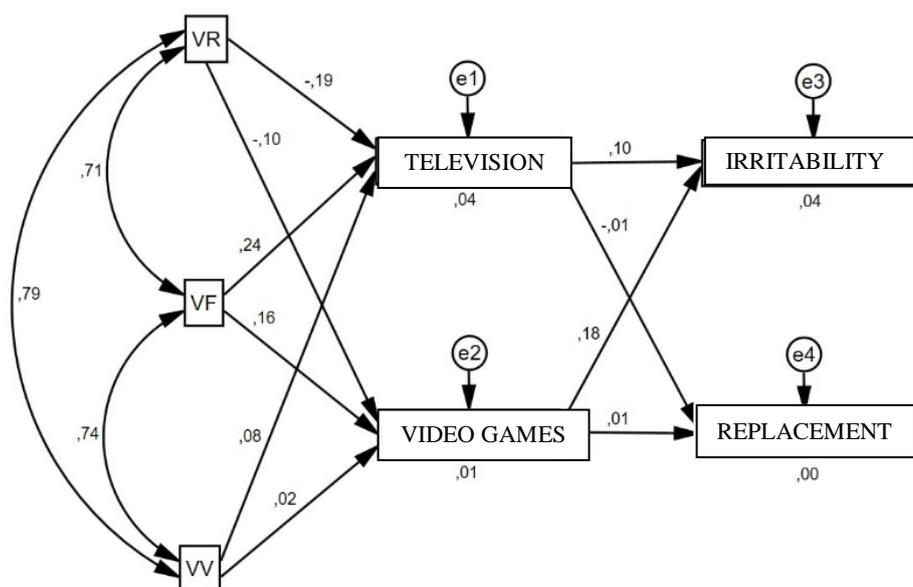


Figure 2. Structural equation model of victimization related to the use of video games and television

Table 3 - Regression weights and standardised regression weights

Relations between variables	R.W.				S.R.W.
	EST	E.E.	C.R.	P	EST
VIDEOGAMES ← PV	0,180	0,077	2,350	*	0,159
VIDEOGAMES ← RV	-0,119	0,089	-1,335	0,182	-0,101
VIDEOGAMES ← VV	0,020	0,082	0,249	0,804	0,020
TELEVISION ← VV	0.074	0.072	1.028	0.304	0.080
TELEVISION ← RV	-0.200	0.079	-2.542	*	-0.189
TELEVISION ← PV	0.244	0.068	3.595	***	0.240
REPLACEMENT ← TELEVISION	-0.010	0.040	-0.235	0.814	-0.010
REPLACEMENT ← VIDEOGAMES	0.007	0.036	0.205	0.838	0.009
IRRITABILITY ← TELEVISIÓN	0.077	0.033	2.359	*	0.101
IRRITABILITY ← VIDEOGAMES	0.123	0.029	4.197	***	0.180
RV ↔ VV	0.315	0.022	14.160	***	0.795
RV ↔ PV	0.258	0.020	13.173	***	0.710
VV ↔ PV	0.304	0.022	13.507	***	0.737

¹ R.W., Regression Weights; S.R.W., Standardised Regression Weights; EST, Estimations; E.E., Estimation Error; C.R., Critical Ratio.

² PV, Physical Victimization; RV, Relational Victimization; VV, Verbal Victimization

³ * Relation between statistically significant variables in level 0,05.

⁴ *** Relation between statistically significant variables in level 0.005.

Statistically significant associations are observed in level 0.005 between all victimization dimensions, being all of them positive and direct. There is also a direct relation between the use of television and physical victimization ($p < 0.005$; $r = 0.240$), as opposed to an inverse association with relational victimization ($p < 0.05$; $r = -0.189$). Additionally, statistically significant relations exist between physical victimization and video games ($p < 0.05$; $r = 0.159$), the use of television and irritability ($p < 0.05$; $r = 0.101$), and the use of video games and irritability ($p < 0.05$; $r = 0.180$), all of them positively related. It must be noted that statistically significant differences were not found between video games, and relational and verbal victimization, and between replacement of activities and the use of television and video games. In the cases where no statistical associations are found, the critical ratio (CR) value is lower than 2, since higher values indicate that the parameter is significantly different from 0 (Byrne, 2013). Therefore, it can be established that the scales used in the

mentioned variables have no convergent validity.

Discussion

This research study presents the model of multi-victimization between peers and its three dimensions – relational, verbal, and physical victimization- developed by Mynard and Joseph (2000) on students in the third cycle of Primary Education, as well as their abuse of sedentary digital leisure devices – television and video games. The structural model developed was effectively fit, as similar national and international studies proved (Felix, Sharkey, Green, Furlong, & Tanigawa, 2011; Delisi et al., 2013; Shaw, Dooley, Cross, Zubrick, & Waters, 2013; Vilches, 2015; Espejo, Chacón, Zurita, & Castro, 2016).

Firstly, regarding basic descriptors of the sample studied, it was found that boys suffered more physical victimization than girls, not finding statistically significant associations between physical and verbal victimization. These discoveries were justified by Ferguson (2015), who suggests that physical aggressions between male peers

are a means of strengthening self-esteem, help to manage negative emotions or even socialise. Additionally, boys watched more television and played more video games than girls, data which coincides with suggestions by Boxer et al. (2015). They think this tendency is due to there being a greater amount of devices with contents which are culturally associated to boys. On the other hand, boys' greater use of digital devices can also be understood because of their greater need for external awards provided by video games through reinforcement-award. This could explain the higher levels of irritability found in males (Chacón et al., 2017; Ditrnick et al., 2013).

In relation to the model suggested, it can be seen that all the dimensions of victimization are related, showing a positive and direct association. Studies like those by Caba, Buelga, Musitu and Murgui (2010) show the negative effect produced by bullying in the victims' psychosocial adjustment, showing how these effects are mainly related to simultaneous direct and indirect aggressions – physical or verbal victimization, and relational victimization – which would justify the positive relation between the three types of victimization, since these three dimensions are interconnected. In fact, Shaw et al. (2013) and Vilches (2015) state that physical and verbal aggressions usually go together, and these physical and verbal aggressions are usually connected to relational or indirect victimization too, by means of isolation or peer influence.

These findings show how physical victimization, and the use of television and video games are directly associated. In similar studies, Lam, Cheng and Liu (2013) analysed the associations between the exposure to violent video games, victimization, and cyberbullying, finding that the students who had suffered bullying were exposed twice as much to violent video games. Likewise, Delisi et al. (2013), in a study on the influence of violent video games on youth violence and crime, demonstrated

how this kind of digital leisure affects psychological variables such as thinking, feelings, and well established violent behaviour patterns. These authors state that other indicators of antisocial behaviour can also influence the association between violent video games and violent behaviour. The use of these devices constitutes a risk factor regarding this problem, affecting perception of fear, anxiety and empathy (Delisi et al., 2013; Ferguson et al., 2010; Méndiz, De Aguilera, & Borges, 2011).

In the same way, verbal victimization was positively related to watching TV, which can act as a risk factor for displaying violent content or as a means of evasion from bullying. Authors such as Hiduja and Patchin (2010) or Watt et al. (2015) determine how TV abuse by schoolchildren is associated with an increasing risk of being bullied, being also related to mental problems, depression, low self-esteem and poor academic performance. In fact, García et al. (2010) and López Sabater (2014) recall how screen digital leisure offers young people learning models by observation, therefore helping children and teenagers learn aggressive behaviours in their different manifestations. Due to the double aggressor - victim role (Estévez, Jiménez, & Moreno, 2010), these premises could explain why schoolchildren who watch more television are those who receive more verbal victimization, especially if they obtain benefits through it, such as popularity or avoidance of aggression (Espejo et al., 2016; Ttofi & Farrington, 2011).

A positive relationship was found between the use of video games and television, and the level of irritability when not being able to use them. Studies such as those by Carbonell (2014) and Van Rooij et al. (2010) point out the number of hours devoted to it as a distinguishing element regarding pathological and excessive use of screen digital leisure, linking it to social consequences - such as poor social relations, lesser empathy or poor academic performance- and psychological consequences – such as impulsiveness,

focused attention, poor self-control and unstable states of mind (Boxer et al., 2015; Hasan et al., 2013)-, which justifies the results obtained. It is also important to point out that there is no relation between the use of TV and video games, and the replacement of activities. The reason for this can be that the children in the sample are very young and so parents control more actively the time of exposure and the contents of the screen digital leisure (Vallejos & Capa, 2010). In fact, Both and Dunn (2013) and Macias, Gordillo and Camacho (2012) state that the role of parents is very important in relation to helping young children with academic tasks, and in the development of healthy habits such as practising sport (Garrido, Romero, Ortega, & Zagalaz, 2011), which help as preventive factors against the pathological use of these devices.

Finally, it is interesting to refer to the limits in this study. The first one is referred to the descriptive and cross-sectional design, which does not allow causal relations, as opposed to longitudinal studies. Another one is the sample used, which was made up of Primary Education students, being this stage less prone to victimization than adolescence. Therefore, it would be interesting to include a sample of Secondary Education students in future studies. It would have also been interesting to include other variables in the study such as different kinds of violent behaviours, in order to define the aggressor-victim role according to the use of video games and TV.

The conclusions reached in this study show a good fit of the structural model, as well as an acceptable reliability. This study generates a specific view about relations between the different types of victimization which take place in schools, and the abuse of digital leisure. Positive relations were found between the three kinds of victimization, physical victimization and the use of video games and TV, and verbal victimization and the use of TV. Likewise, both digital leisure habits were positively associated with levels of irritability in schoolchildren. In this sense,

we can see that bullying can act as a risk factor in relation to the problematic use of video games and TV, these habits being able to create negative effects at a cognitive and socio-affective level, especially in the development of specific levels of aggressiveness and poor social abilities. Therefore, it is really important that parents manage and control the schoolchildren's exposure to screen digital leisure.

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