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The Relationship between Parental Control and High-Risk Internet Behaviours in Adolescence

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Abstract: One of the main predictors of being a victim of cyber-aggression is engaging in high-risk behaviours on the internet. The main objective of this research is to analyse the relationship between two types of parental control (restriction and supervision) and engagement in high-risk internet behaviours during adolescence. To that end, and as a secondary objective, we designed and validated the *High-risk Internet Behaviours Questionnaire* for adolescents, used in this study. We analysed the responses of 946 adolescents aged between 12 and 18 to the *High-risk Internet Behaviours Questionnaire* and the *Questionnaire on Parental Control of Internet Use in Adolescence*. The results show that the questionnaire has appropriate metrics of reliability and validity, and show the existence of a statistically significant negative relationship, albeit small, between supervision and engaging in high-risk internet behaviours. We discuss the practical implications of these results.

Keywords: parental control; restriction; supervision; high-risk behaviours; internet; adolescence

1. Introduction

The internet can be a very positive tool for an adolescent. It may be of great use for learning and sharing knowledge, taking part in social initiatives, and keeping in touch with family and friends. However, careless internet use can produce certain risks, such as excessive internet use, exposure to potentially harmful content, or being the victim of cyber-aggression. Cyber-aggression refers to those behaviours or omissions through information and communication technologies that is intended to harm or offend (Corcoran et al. 2015). These aggressions can take various forms, such as written or verbal cyber-aggression, visual cyber-aggression, online exclusion, and impersonation (Nocentini et al. 2010).

Certain adolescent behaviours related to mobile phone or internet use can make it easier for people to fall victim to cyber-aggression. Previous research has shown that these high-risk behaviours include allowing others to upload one's videos or images to the internet, adding people to social networks who are not known personally, communicating online with strangers, publishing personal information on social networks, meeting up with someone face-to-face who has only previously been known online, giving out one's telephone number to people that have just been met or are not known well, sending compromising photos of oneself or others via mobile phones or the internet, and exchanging personal information with people only known online (Gómez et al. 2017; Liau et al. 2005; Mesch 2009; Sasson and Mesch 2017).

The family has an important role to play in preventing these high-risk behaviours. Parents are often advised to exercise some control over their children's internet use. Occasionally, families set limits or *restrictions* on internet use (time, content, activities, etc.), either establishing rules or using specific software. Or they may *supervise* the adolescents' activity, covertly or overtly, either during or following the activity. Some studies maintain that parental control over internet use is a protective factor, albeit limited, for these high-risk behaviours (Lee 2013; Lee and Chae 2012; Liau et al. 2005) as well as for being a victim of

cyberbullying (Elsaesser et al. 2017; Giménez et al. 2017; Navarro et al. 2013). Some studies have been more specific, finding a significantly larger effect for supervision than for restriction (Khurana et al. 2015). However, there is research which suggests the existence of a positive relationship between parental internet control and engaging in high-risk internet behaviours (Duerager and Livingstone 2012) or being the victim of cyberbullying (Sasson and Mesch 2017). This result was interpreted as indicating that parental control was more likely when the parents knew or suspected that their child was engaging in high-risk behaviours or being on the receiving end of cyberbullying.

Faced with these inconsistent results from previous research, the main objective of this study is to analyse the relationship between parental control of internet use and high-risk internet behaviours in a sample of Spanish adolescents. In order to achieve that, and as a secondary objective, we undertook the design and validation of the *High-Risk Internet Behaviours Questionnaire* for adolescents, which was used in this study.

2. Method

2.1. Participants

The participants in this study were students in compulsory secondary education in six schools in Asturias (Spain). Before performing a statistical analysis, we selected the students who reported that they owned their own mobile phone, used instant messaging (e.g., WhatsApp), participated in social networks, and surfed the internet for non-homework purposes. The final sample was made up of 946 adolescents aged between 12 and 18 ($M = 14.29$; $SD = 1.37$), 50.7% girls. The distribution of students over the four years of compulsory secondary education (ESO) was: 20.5% in first year, 25.3% in second year, 26.6% in third year, and 27.6% in fourth year.

2.2. Measuring Instruments

2.2.1. High-Risk Internet Behaviours Questionnaire

This is a self-report designed and tested for this study (Appendix A). It is made up of 8 items, each of which describes a high-risk behaviour on the internet. The respondent indicates the extent to which they think it is true that they engage in each of the behaviours through a Likert-type scale with four alternatives (1 = completely false, 2 = somewhat false, 3 = somewhat true, 4 = completely true). In the Results section, we give the psychometric properties of the questionnaire.

2.2.2. Questionnaire on Parental Control of Internet Use during Adolescence

This questionnaire (Álvarez-García et al. 2018) is made up of 7 items. For each item, the respondent indicates the extent to which they think the corresponding statement about possible control of their internet use by their parents is true. The questionnaire measures two types of control: restriction (e.g., “My parents limit when I can use the internet (either by telling me or by configuring the computer)”) and supervision (e.g., “My parents know who is in my list of contacts”). The responses are in a Likert-type format with four alternatives (1 = completely false, 2 = somewhat false, 3 = somewhat true, 4 = completely true). High scores indicate high levels of either restriction or supervision. The internal consistency of each factor in the sample in this study is adequate ($\alpha = 0.71$ for the restriction factor and $\alpha = 0.79$ for the supervision factor).

2.3. Procedure

Once the participating schools and the questionnaires had been decided on, we sought permission from each school’s management to carry out the study. We informed them of the research objectives and the process, and the fact that it was voluntary and anonymous, and that the results would be treated confidentially. Before completing the questionnaire, the students were also informed of the

same information. The instrument was applied by the research team to all of the groups in each of the schools during school hours.

2.4. Data Analysis

Firstly, we analysed the statistical guarantees from the *High-Risk Internet Behaviours Questionnaire*, then we analysed the relationship between parental control and high-risk internet behaviours in adolescence. For the former, we analysed the psychometric properties of the items using SPSS 24.0 software. Following that, we performed a confirmatory factor analysis using EQS 6.2 software, starting from the polychoric correlation matrix, using the robust maximum likelihood method of estimation given the non-normally distributed scores. Finally, we calculated the reliability for the questionnaire in terms of internal consistency via Cronbach's alpha. For the analysis of the relationship between parental control and high-risk internet behaviours we calculated Spearman correlation coefficients, partial correlation coefficients, and multiple linear regression, using SPSS 24.0 software.

3. Results

3.1. Validation of the High-Risk Internet Behaviours Questionnaire

3.1.1. Item Analysis

The proportion of participants who failed to answer each item, or gave invalid responses is relatively insignificant (between 0.2% and 0.7%) as Table 1 shows. All of the alternatives were chosen by some participants for each item. The standard deviations show that there was variability between participants' scores. According to the results of the Kolmogorov–Smirnov test (Table 1), the scores for each item were not normally distributed. All of the items, except item 1, demonstrated positive asymmetry, which means that the students tended to score the lower values in the scale (few high-risk internet behaviours).

Table 1. Descriptive statistics for the application of the *High-Risk Internet Behaviours Questionnaire* to the sample ($N = 946$).

Item	Scale Scores (%)					M	SD	Asym. (SE = 0.08)	Kurt. (SE = 0.16)	Z	r_{i-t}
	1	2	3	4	NA						
1	23.3	21.5	35.5	19.5	0.3	2.51	1.05	−0.13	−1.19	7.02 *	0.32
2	31.0	30.4	25.6	12.6	0.4	2.20	1.02	0.32	−1.05	5.90 *	0.55
3	46.6	20.7	20.3	11.6	0.7	1.97	1.07	0.64	−0.96	8.76 *	0.50
4	32.9	29.8	23.8	13.2	0.3	2.17	1.03	0.37	−1.06	6.18 *	0.41
5	76.1	8.7	9.5	5.5	0.2	1.44	0.88	1.83	2.04	13.98 *	0.52
6	47.4	25.5	18.3	8.7	0.2	1.88	1.00	0.77	−0.63	8.80 *	0.55
7	85.9	8.9	3.6	1.3	0.3	1.20	0.55	3.10	9.74	15.37 *	0.34
8	77.1	13.3	6.2	3.0	0.4	1.35	0.73	2.18	4.06	13.98 *	0.52

Scale scores: 1= completely false; 2= somewhat false; 3= somewhat true; 4= completely true; NA= no answer or null answer; M = mean; SD = standard deviation; Asym. = asymmetry; Kurt. = kurtosis; SE = standard error; Z = Kolmogorov–Smirnov Z; r_{i-t} = corrected item–total correlation. * $p < 0.001$.

The corrected item–total correlation (r_{i-t}) was positive in all items, with values between 0.32 and 0.55, which indicates that they all contributed to measuring what the test measured, in the same direction. The correlations between each of the questionnaire items were positive and statistically significant in all cases, with values ranging between 0.11 and 0.46. Therefore, all of the items were related, but not redundant.

3.1.2. Factor Analysis

In order to examine the theoretical model fit to the empirical data, we performed a confirmatory factor analysis. The model being tested is made up of a single factor (high-risk internet behaviours). Each item in the questionnaire would be explained by this factor. The results indicate that this

single-factor model adequately represents the data we obtained $\chi_{SB}^2 = 111.96$; $df = 20$; $\chi^2/df = 5.60$; NFI = 0.960; CFI = 0.967; RMSEA = 0.070 (90% CI: 0.057–0.082). The factorial weightings for each item in the factor are moderate or high (Figure 1).

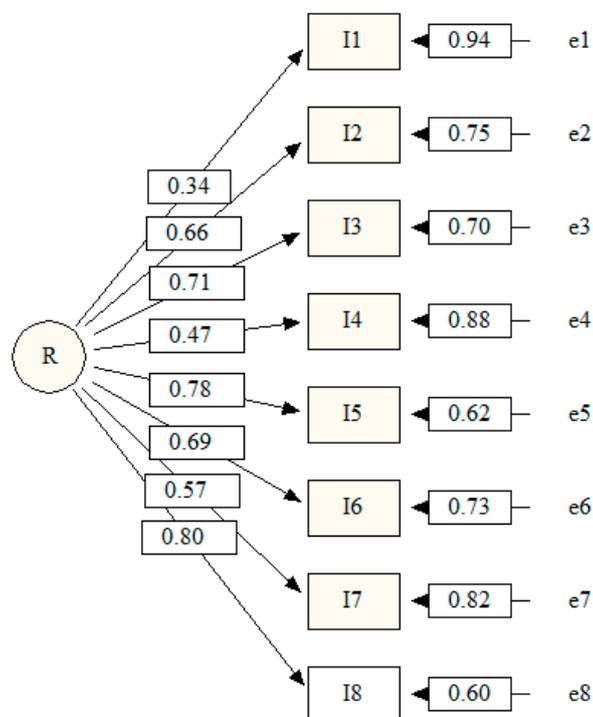


Figure 1. Factorial structure of the *High-Risk Internet Behaviours Questionnaire* (R = high-risk internet behaviours).

3.1.3. Reliability

Test reliability, as measured by internal consistency, was adequate. Cronbach’s alpha for the overall scale was 0.84.

3.2. Relationship between Parental Control and High-Risk Internet Behaviours

The obtained Spearman correlation coefficients (Table 2) seem to show that the extent to which adolescents report that their parents or guardians restrict or supervise their internet use is statistically significantly negatively correlated with the extent to which the adolescents recognise their own high-risk internet behaviours. This association, however, is relatively weak.

Table 2. Correlation between scores for parental internet restriction and supervision and adolescent high-risk Internet behaviours (N = 946).

	High-Risk Internet Behaviours		
	r_s	$r_{ab.c}$	β
Restriction	−0.12 ***	−0.08 *	0.003
Supervision	−0.16 ***	−0.14 ***	−0.141 ***

r_s = Spearman correlation; $r_{ab.c}$ = partial correlation, controlling for the effect of age; β = standardized regression coefficients, including age, restriction, and supervision in the model. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

In the sample being analysed, age correlated negatively with parental rules ($r_s = -0.29$; $p < 0.001$) and supervision ($r_s = -0.28$; $p < 0.001$) of internet use, and correlated positively with adolescents’ high-risk internet behaviours ($r_s = 0.19$; $p < 0.001$). In order to show that the relationship between

parental control and high-risk behaviours was not spurious, and explained by the relationship between the two variables and age, we analysed the partial correlation between high-risk internet behaviours and the two types of parental control, statistically controlling for the effect of age. As Table 2 shows, the results are very similar to the zero order correlations.

However, multiple linear regression including age, restriction, and supervision in the model shows that supervision, but not restriction, is significantly associated with adolescent high-risk internet behaviours (Table 2). Restriction is statistically significantly positively correlated with supervision ($r_s = 0.60$; $p < 0.001$).

4. Discussion

The main objective of this study was to analyse the relationship between parental control over internet use (restriction or supervision) and high-risk internet behaviours in a sample of Spanish adolescents. The results support the hypothesised negative relationship, but only for supervision.

This result fits with the idea that the family has a significant, although limited, influence over the prevention of adolescent high-risk behaviours. Various possible reasons have been identified for this limited influence (Navarro et al. 2013). One is that adults often do not understand the content of the apps their children use, or how they work. The adolescents may have strategies to get around the rules without leaving traces of their activities on their devices, which makes it more difficult to control. As the children get older, they may also spend more time with their friends rather than family, and if their friends encourage these behaviours, there is a higher risk that the adolescent will engage in them (Sasson and Mesch 2014).

In this study, engaging in high-risk internet behaviours demonstrated a stronger (negative) relationship with supervision than with restriction, as in previous research (Khurana et al. 2015). It may suggest that control is more effective if the adolescents' behaviour is monitored, rather than just announcing a restriction or using a specific piece of software. Nonetheless, it is important to remember that parental control over internet use tends to have positive effects, especially in open, affective contexts which support adolescent autonomy, and negative effects in inconsistent and controlling contexts (Gómez-Ortiz et al. 2015; Valkenburg et al. 2013).

A secondary objective in this study, essential to fulfil the main objective, was to design and validate the *High-Risk Internet Behaviours Questionnaire* for adolescents. The results demonstrate that the indicators chosen to measure the construct are appropriate, and that the test has adequate psychometric properties of reliability and validity for the use it was designed for.

This study, therefore, represents a contribution to the field of research, in so far as it provides a new tool for measuring high-risk internet behaviours in adolescence, and contributes to the clarification of the relationship between parental control of internet use and engaging in high-risk internet behaviours in adolescence. In order to prevent high-risk behaviours and, in turn, prevent their children from becoming victims of cyber-aggression in adolescence, it is important for families to have some control over their children's internet activity. To be effective and not counterproductive, that control must adapt to the adolescent's maturity and need for autonomy (Ang 2015). The objective should be to encourage a responsible autonomy, and not to impose restrictions on it. The control should be exercised in an affective context, in which adolescents are encouraged to think critically about positive, responsible Internet use.

While this research is a contribution to the field, it is not without limitations. In the first place, this research was carried out with an incidental sample, extracted from a specific population limited to certain ages and geographical areas. Therefore, any generalisation of the conclusions to other ages or regions should be made with caution. In the second place, the research used adolescents' self-reports. It would be useful in future to gather information from the families as well. Finally, we used a correlational methodology, which means that the direction of the relationship cannot be determined. The conclusions are made as a hypothesis for confirmation in the future using other methodologies (such as longitudinal studies).

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Appendix A. High-Risk Internet Behaviours Questionnaire

Mark a cross (X) to indicate the extent to which you think each of the following statements are true. Please only choose one answer from the four options available. Try to respond to all of the statements.

	1	2	3	4
1. Permito que otras personas suban fotos o videos míos a Internet [I let other people upload my photos or videos to the internet].				
2. Agrego a mis redes sociales a gente que no conozco personalmente [I add people to my social networks who I don't know personally].				
3. Me he comunicado alguna vez on-line con extraños (por ejemplo, chateando) [I have communicated online with strangers (e.g., in chats)].				
4. Suelo publicar información personal en mis redes sociales: qué voy a hacer, dónde y con quién; fotos o videos personales o familiares;.. [I usually publish personal information on my social networks: what I am going to do, where, and who with; personal or family photos or videos ...].				
5. He quedado alguna vez con alguien en persona que conocía sólo de Internet [I have met up with someone in person who I had only previously known online].				
6. Doy mi número de teléfono a chicos o chicas a los que acabo de conocer o conozco poco [I give my telephone number to boys or girls who I have just met or who I don't know very well].				
7. He enviado alguna foto comprometida mía a otras personas a través del teléfono móvil o Internet [I have sent compromising photos (mine or belonging to someone else) by mobile phone or internet].				
8. He intercambiado información personal mía con personas a las que solo conozco de Internet [I have exchanged my personal information with people who I have only known online].				

1 = completely false; 2 = somewhat false; 3 = somewhat true; 4 = completely true.

References

- Álvarez-García, David, Trinidad García, Marisol Cueli, and José Carlos Núñez. 2018. Control parental del uso de Internet durante la adolescencia: Evolución y diferencias de género. Manuscript submitted for publication.
- Ang, Rebecca P. 2015. Adolescent cyberbullying: A review of characteristics, prevention and intervention strategies. *Aggression and Violent Behavior* 25: 35–42. [CrossRef]
- Corcoran, Lucie, Conor Mc Guckin, and Garry Prentice. 2015. Cyberbullying or Cyber Aggression? A Review of Existing Definitions of Cyber-Based Peer-to-Peer Aggression. *Societies* 5: 245–55. [CrossRef]
- Duerager, Andrea, and Sonia Livingstone. 2012. *How Can Parents Support Children's Internet Safety?* London: EU Kids Online.
- Elsaesser, Caitlin, Beth Russell, Christine McCauley Ohannessian, and Desmond Patton. 2017. Parenting in a digital age: A review of parents' role in preventing adolescent cyberbullying. *Aggression and Violent Behavior* 35: 62–72. [CrossRef]

- Giménez, Ana M., José A. Luengo, and M. José Bartrina. 2017. What are young people doing on Internet? Use of ICT, parental supervision strategies and exposure to risks. *Electronic Journal of Research in Educational Psychology* 15: 533–52. [[CrossRef](#)]
- Gómez, Patricia, Sion Kim Harris, Carmen Barreiro, Manuel Isorna, and Antonio Rial. 2017. Profiles of Internet use and parental involvement, and rates of online risks and problematic Internet use among Spanish adolescents. *Computers in Human Behavior* 75: 826–33. [[CrossRef](#)]
- Gómez-Ortiz, Olga, Rosario Del Rey, Eva María Romera, and Rosario Ortega-Ruiz. 2015. Los estilos educativos paternos y maternos en la adolescencia y su relación con la resiliencia, el apego y la implicación en acoso escolar. *Anales de Psicología* 31: 979–89. [[CrossRef](#)]
- Khurana, Atika, Amy Bleakley, Amy B. Jordan, and Daniel Romer. 2015. The Protective Effects of Parental Monitoring and Internet Restriction on Adolescents' Risk of Online Harassment. *Journal of Youth and Adolescence* 44: 1039–47. [[CrossRef](#)] [[PubMed](#)]
- Lee, Sook-Jung. 2013. Parental restrictive mediation of children's internet use: Effective for what and for whom? *New Media & Society* 15: 466–81. [[CrossRef](#)]
- Lee, Sook-Jung, and Young-Gil Chae. 2012. Balancing Participation and Risks in Children's Internet Use: The Role of Internet Literacy and Parental Mediation. *Cyberpsychology, Behavior, and Social Networking* 15: 257–62. [[CrossRef](#)] [[PubMed](#)]
- Liau, Albert Kienfie, Angeline Khoo, and Peng Hwaang. 2005. Factors Influencing Adolescents Engagement in Risky Internet Behavior. *CyberPsychology&Behavior* 8: 513–20. [[CrossRef](#)]
- Mesch, Gustavo S. 2009. Parental Mediation, Online Activities, and Cyberbullying. *Cyberpsychology&Behavior* 12: 387–93. [[CrossRef](#)]
- Navarro, Raúl, Cristina Serna, Verónica Martínez, and Roberto Ruiz-Oliva. 2013. The role of Internet use and parental mediation on cyberbullying victimization among Spanish children from rural public schools. *European Journal of Psychology of Education* 28: 725–45. [[CrossRef](#)]
- Nocentini, Annalaura, Juan Calmaestra, Anja Schultze-Krumbholz, Herbert Scheithauer, Rosario Ortega, and Ersilia Menesini. 2010. Cyberbullying: Labels, behaviours and definition in three European countries. *Australian Journal of Guidance & Counselling* 20: 129–42.
- Sasson, Hagit, and Gustavo Mesch. 2014. Parental mediation, peer norms and risky online behavior among adolescents. *Computers in Human Behavior* 33: 32–38. [[CrossRef](#)]
- Sasson, Hagit, and Gustavo Mesch. 2017. The Role of Parental Mediation and Peer Norms on the Likelihood of Cyberbullying. *The Journal of Genetic Psychology* 178: 15–27. [[CrossRef](#)] [[PubMed](#)]
- Valkenburg, Patti M., Jessica Taylor Piotrowski, Jo Hermanns, and Rebecca De Leeuw. 2013. Developing and Validating the Perceived Parental Media Mediation Scale: A Self-Determination Perspective. *Human Communication Research* 39: 445–69. [[CrossRef](#)]



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