



The European Journal of Psychology Applied to Legal Context

<https://journals.comadrid.org/ejpalc>



Anxiety and Self-esteem as Causes and Consequences of Cyber-victimization in Preadolescence: A Longitudinal Study

David Álvarez-García¹, Trinidad García¹, and Lucy Betts²

¹University of Oviedo, Spain; ²Nottingham Trent University, Nottingham, Great Britain

ARTICLE INFO

Article history:

Received 4 October 2024

Accepted 15 November 2024

Keywords:

Anxiety

Self-esteem

Risk internet behaviors

Cyber-victimization

Preadolescence

ABSTRACT

Background/Objective: In recent years, the use of electronic communication devices at early ages has become widespread, promoting concern about the possible risks associated with technology use. This research explores the connection between being a victim of online aggression, and anxiety and low self-esteem by analysing: 1) the level and developmental trajectory of anxiety and self-esteem; 2) the effect of anxiety and self-esteem in 4th and 5th grade of Primary Education on cyber-victimization in 6th grade, both directly and mediated by risk internet behaviours; and 3) the effect of cyber-victimization in 6th grade on anxiety and self-esteem in that same year. **Method:** A three-year longitudinal study was undertaken with 268 students attending nine schools in Asturias (Spain). Participants completed measures at three timepoints, separated by a year interval: when they were in 4th, 5th, and 6th grade. In 4th and 5th grade, self-report scales of anxiety and self-esteem were administered. In 6th grade, self-report scales of risk internet behaviors and cyber-victimization were also administered. **Results:** An increase in anxiety and a decrease in self-esteem from 5th to 6th grade was found. There was also an indirect effect of anxiety and self-esteem in 5th grade on cyber-victimization in 6th grade, mediated by risk internet behaviors. Cyber-victimization in 6th grade negatively impacted anxiety and self-esteem in that same year. **Conclusions:** The results obtained in this work suggest a bidirectional relationship between anxiety/low self-esteem and cyber-victimization.

La ansiedad y la autoestima como causas y consecuencias de cibervictimización en la adolescencia: un estudio longitudinal

RESUMEN

Antecedentes/Objetivo: En los últimos años se ha generalizado el uso de dispositivos electrónicos de comunicación en edades tempranas, aumentando la preocupación por los posibles riesgos asociados. Esta investigación explora la relación entre ser víctima de ciberagresiones, la ansiedad y la baja autoestima, analizando: 1) el nivel y trayectoria evolutiva de la ansiedad y la autoestima, 2) el efecto de la ansiedad y la autoestima en 4º y 5º de Educación Primaria sobre la cibervictimización en 6º, tanto directo como mediado por las conductas de riesgo en internet, y 3) el efecto de la cibervictimización en 6º sobre la ansiedad y la autoestima ese mismo año. **Método:** Se realizó un estudio longitudinal de tres años con 268 alumnos de nueve escuelas en Asturias (España). Se les aplicaron los instrumentos en tres momentos, separados por un intervalo de un año: cuando estaban en 4º, 5º y 6º de Primaria. En 4º y 5º se administraron cuestionarios de autoinforme de ansiedad y autoestima y en 6º se administraron además cuestionarios de autoinforme de conductas de riesgo en internet y cibervictimización. **Resultados:** Se encontró un aumento de la ansiedad y una disminución de la autoestima de 5º a 6º curso. También hubo un efecto indirecto de la ansiedad y la autoestima en 5º sobre la cibervictimización en 6º, mediado por las conductas de riesgo en internet. La cibervictimización en 6º afectó negativamente a la ansiedad y la autoestima en ese año. **Conclusiones:** Los resultados obtenidos en este trabajo indican que hay una relación bidireccional entre ansiedad/baja autoestima y cibervictimización.

In recent years, an increase in mental health problems has been observed worldwide. The COVID-19 pandemic was a highly stressful situation with individuals experiencing a range of stressors. For example, stressors included the uncertainty and lack of control over

the situation; the fear of contagion and its consequences, on oneself and on those close to them; the loss of loved ones; economic or work concerns for family members; the social isolation and loss of opportunities for positive interaction and achievement (e.g., sports

Cite this article as: Álvarez-García, D., García, T., & Betts, L. (2025). Anxiety and self-esteem as causes and consequences of cyber-victimization in preadolescence: A longitudinal study. *European Journal of Psychology Applied to Legal Context*, 17(1), 1-9 <https://doi.org/10.5093/ejpalc2025a1>

Funding: This work has been funded by the Spanish Ministry of Science, Innovation and Universities (Ref. MCIU-19-PGC2018-097739-B-I00), and by the Government of the Principality of Asturias (Spain) and the European Union (Ref. GRU-GIC-24-034). Correspondence: alvarezgardavid@uniovi.es (D. Álvarez-García).

ISSN: 1889-1861/© 2025 Colegio Oficial de la Psicología de Madrid. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

activities, celebrations, etc.); or online learning difficulties (Ochoa-Fuentes et al., 2022). Consequently, the pandemic altered our way of life and the associated impact on mental health is likely to be seen for years (Lange, 2021). At the beginning of the pandemic, during the most acute moments of infection and mortality and when stricter measures were applied, the proportion of the population reporting symptoms of anxiety and depression increased in all Organization for Economic Co-operation and Development countries (OECD, 2023). Today, the available data shows some recovery, but levels of anxiety and depression remain notably higher than before the pandemic (OECD, 2023). In Spain, the most prevalent mental health condition for the general population and children and adolescents at a clinical level is anxiety (Ministry of Health, 2023). Moreover, in recent years there has been an increasing trend in cases of anxiety in Spain (Ministry of Health, 2023).

Childhood and adolescence are crucial stages of development, and experiencing poor mental health during this time can set a trajectory into adulthood. For example, previous studies have reported that experiencing poor mental health prior to 14 years of age increases the risk of experiencing poor mental health during adulthood (Mulraney et al., 2021). Further, increased symptoms rather than diagnosis in childhood were generally more strongly associated with poor mental health in adulthood (Mulraney et al., 2021). Relatedly, poor mental health in childhood and adolescence may co-occur with difficulties at a social or academic level, which, in turn, may become chronic or increase the risk of other psychological difficulties (Lahey, 2015). Consequently, it is important to detect, prevent, and treat poor mental health, such as anxiety, during childhood and adolescence, especially at a time when anxiety levels are increasing in Spain.

In non-clinical populations of preadolescents there are few longitudinal studies analyzing the normative trajectory of anxiety. Van Oort et al. (2009) analyzed data from a large sample of boys and girls aged 10 to 17 years in the Netherlands at three time-points across a 5-year interval. All subtypes of anxiety initially showed a decrease in symptoms, followed by a leveling off of the decrease, and a subsequent slight increase in symptoms from middle adolescence (13-14 years) or late adolescence (16-17 years) onwards (middle or late depending on the type of anxiety analyzed).

Experiencing elevated levels of anxiety is often associated with other adjustment difficulties including experiencing depressive symptoms (Lack, in press). Meta-analysis studies have found a bidirectional relationship between anxiety and depression at both symptom and disorder levels (Jacobson & Newman, 2017). One of the most characteristic symptoms of depression is low self-esteem (Orchard et al., 2017) and there is evidence of a relationship between anxiety and self-esteem. Specifically, meta-analysis studies show a significant negative bidirectional relationship between anxiety and low self-esteem of low or moderate magnitude (Sowislo & Orth, 2013; Yeo et al., 2023). Together, these meta-analyses highlight that high levels of anxiety are associated with low levels of self-esteem and that low self-esteem can negatively affect interpersonal relationships and academic performance in children and adolescents. Consequently, it is important to explore the trajectory of self-esteem during preadolescence.

Review studies on the normative trajectory of self-esteem during preadolescence show results that are not entirely consistent. On the one hand, following a review of the literature, Robins and Trzesniewski (2005) propose a complex trajectory of self-esteem associated with age. Specifically, young children have relatively high self-esteem, which gradually declines over the course of childhood (9-12 years) and declines further during adolescence (13-17 years), and then rises gradually during adulthood. In contrast, a more recent meta-analysis of longitudinal studies undertaken by Orth et al. (2018) concludes that average levels of self-esteem increase from age 4 to 11 years, remain stable from age 11 to 15, and increase strongly until age 30. Therefore, different studies have yielded different trajectories

of self-esteem during preadolescence. However, considering the (negative) relationship that exists between anxiety and self-esteem, the results of the study by Orth et al. (2018) are more consistent with those of Van Oort et al. (2009) about the developmental trajectory of anxiety.

Although both anxiety and depressive symptoms can be influenced by a genetic predisposition (O'Leary et al., 2020), exposure to adverse and stressful situations during childhood constitutes an essential risk factor associated with developing anxiety and depression (Elmore & Crouch, 2020). One such stressful situation faced by preadolescents are peer relationships, especially if preadolescents experience difficulties with integrating into the peer group (Garaigordobil & Machimbarrena, 2019). Peer victimization represents a common challenge for many adolescents with previous research consistently reporting the existence of a positive and bidirectional relationship between peer victimization and internalizing symptoms. High levels of victimization are related to high levels of internalizing symptoms as reported in several meta-analyses (e.g., Christina et al. 2021; Reijntjes et al., 2010) and meta-regressions (Mullan et al., 2023) conducted on longitudinal data. More specifically, the meta-analysis performed on longitudinal studies by Christina et al. (2021) highlights that peer victimization is positively and bidirectionally related to anxiety. Similarly, the meta-analysis performed on longitudinal studies by Van Geel et al. (2018) and the meta-regression analysis of Mullan et al. (2023) report a bidirectional and negative relationship between peer victimization and self-esteem. However, although some of the studies included in these reviews explored online peer-victimization or broad conceptualizations of peer-victimization (which may encapsulate experiences of cyberbullying) comparably less is known about how anxiety and self-esteem may impact cyberbullying experiences.

Online aggression and cyberbullying can be even more stressful and troublesome for the victim than comparable in-person behaviors because of the unique characteristics associated with cyberbullying. For example, victims may feel especially defenseless with no control of the situation, because the aggressor can act anonymously, at any time and place, with little possibility of the victim being able to respond, and with the possibility that the contents can be spread quickly and extensively (Hinduja & Patchin, 2014). Thus, Christina et al. (2021) concluded that, although significant effects in both directions were shown for traditional (in-person) victimization and cyber-victimization, internalizing symptoms more strongly predicted cyber-victimization than traditional forms of victimization. Meta-analyses performed on longitudinal studies by Marciano et al. (2020) and meta-regression analyses by Molero et al. (2022) found a positive bidirectional relationship between anxiety and being a victim of cyberbullying. Similarly, a systematic review by Agustini Sih et al. (2024) points out a negative bidirectional relationship between self-esteem and being a victim of cyberbullying. Together, these studies highlight the association between experiences of cyber-victimization and anxiety and self-esteem, although the mechanisms that drive underpin these relationships warrant further investigation.

Risk behaviors represent "specific forms of inappropriate problem handling" (Hurrelmann & Richter, 2006, p. 20) and are associated with internalizing symptoms and victimization during adolescence. For example, self-esteem has been identified as an antecedent to risk behaviors during adolescence with engagement in risk behaviors proposed as a mechanism to address low self-esteem (Wild et al., 2004). Similarly, higher levels of anxiety predicted risk behaviors (Soleimani et al., 2017). Engaging in risk behaviors has been found to predict victimization in adolescent males (Windle, 1994). Focusing on online interactions, it is likely that similar relationships may exist and that the relationship between internalizing symptoms and cyber-victimization may be mediated by engaging in risk behaviors on the Internet. That is, factors such as anxiety and low self-esteem may increase the probability of carrying out risk behaviors on the

Internet and these, in turn, increase the probability of being a victim of cyberaggression.

Anxiety has been associated with a greater likelihood of engaging in risk behavior on the Internet. On the one hand, people with social anxiety may prefer social networking sites (especially private social networking sites communication) to face-to-face relationships and may present greater disinhibition through compensatory behaviors (e.g., increased disclosure) (Seabrook et al., 2016). On the other hand, high levels of anxiety can lead to emotional regulation difficulties (Yadlosky et al., 2023), which in turn increase the probability of engaging in risk behaviors (Wallace et al., 2021). Low self-esteem has also been linked to a greater likelihood of risky behavior on the Internet. Leighton et al. (2018) reported in their meta-analysis that self-esteem negatively predicted perceived safety of self-disclosure on Facebook as compared to face-to-face interactions. Compared to higher self-esteem individuals, those lower in self-esteem perceived Facebook to be a safer and more advantageous place for self-disclosure as compared to face-to-face interactions. In support of an association between online risk taking and victimization, adolescents who engaged in online social exploration and risky online self-presentation more often were more likely to receive negative peer feedback (Koutamanis et al., 2015). Along these lines, a meta-analysis by Chen et al. (2017) concluded that risky Information and Communication Technology (ICT) use is a relatively strong predictor of cyberbullying victimization. Therefore, it seems likely that risk behavior will mediate the relationships between anxiety and cyber-victimization and self-esteem and cyber-victimization.

The present study has three objectives to analyze: 1) the level and developmental trajectory of anxiety and self-esteem in a sample of preadolescent students from 4th to 6th grade of Primary Education in Asturias (Spain); 2) the effect of anxiety and self-esteem in 4th and 5th grade on cyber-victimization in 6th grade of Primary Education, both direct and mediated by risk Internet behaviors; and 3) the effect of cyber-victimization in 6th grade of Primary Education on anxiety and self-esteem in that same grade. This study is expected to provide valuable information to understand cyber-victimization among peers in preadolescence, which can be used to prevent and address such behaviors from a legal and psychological perspective. Ultimately, there is the hope that the findings from this research contributes to the protection of minors in the digital environment.

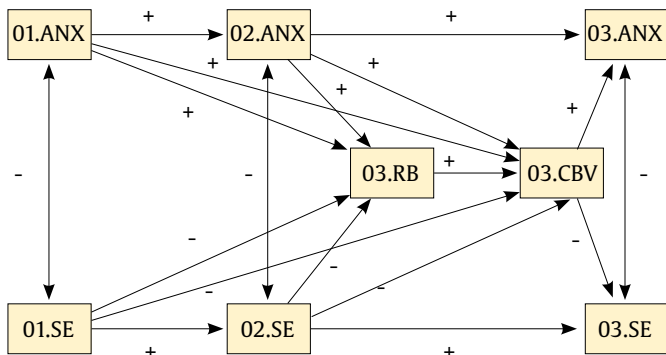


Figure 1. Theoretical Model.

Note. ANX = anxiety; SE = self-esteem; RB = risk Internet behaviors; CBV = cyber-victimization.

In view of previous evidence, it is expected, with respect to the first objective, that anxiety decreases and self-esteem increases from 4th to 6th grade. Regarding the second objective, it is expected that: (a) anxiety in 4th and 5th grade has a direct positive effect on cyber-victimization in 6th grade; (b) self-esteem in 4th and 5th grade has a direct negative effect on cyber-victimization in 6th

grade, and (c) online risk behaviors mediates these relationships (Figure 1). Regarding the third objective, it is expected that cyber-victimization in 6th grade has a positive effect on anxiety and a negative effect on self-esteem in that same grade (Figure 1).

Method

Participants

The sample consisted of 268 students (54.1% girls) recruited from 9 Primary Education schools in Asturias (Spain) who participated in the three waves of this longitudinal study. The participants were between 9 and 11 years old ($M = 9.40$, $SD = 0.55$) at the beginning of the study (Wave 1), when they were in 4th grade of Primary Education.

The sample of nine Primary Education schools was obtained by incidental sampling, based on their availability to complete the three waves. In each selected school all students in 4th, 5th, or 6th grade participated, depending on the phase of the study. In line with the characteristics of the population, the selected schools were predominantly public schools (i.e., government-funded and managed), located in urban areas, and attracted students from middle socio-economic class backgrounds.

Variables and Measurement Instruments

Anxiety

A shortened version of the self-report anxiety scale for children aged 8 to 12 years from the Child and Adolescent Assessment System (Fernández-Pinto et al., 2015) was used to assess anxiety. Specifically, four items (questions 25, 64, 82, and 124) were administered (e.g., "124. My problems distress or overwhelm me"). Participants responded to the items using a Likert-type scale, with five options (1 = *never or almost never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*, 5 = *always or almost always*). The total score for each student on this variable was obtained by adding the scores for the 4 items (min 4, max 20) at each timepoint. High scores indicated high levels of anxiety. The internal consistency of the scores in each of the three waves was $\alpha_{w1} = .62$, $\omega_{w1} = .63$, $\alpha_{w2} = .75$, $\omega_{w2} = .75$, $\alpha_{w3} = .78$, and $\omega_{w3} = .79$.

Self-esteem

A shortened version of the self-report self-esteem scale for children aged 8 to 12 years from the Child and Adolescent Assessment System (Fernández-Pinto et al., 2015) was administered to assess self-esteem. Specifically, items 1, 20, 52, and 133 were used (e.g., "1. I like the way I am"). The response format was a Likert-type scale with five options (1 = *never or almost never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*, 5 = *always or almost always*). The total score for each student on this variable was obtained by adding the scores for the 4 items (min 4, max 20) at each time point. High scores indicate high levels of self-esteem. The internal consistency of the scores obtained in each of the three waves was $\alpha_{w1} = .75$, $\omega_{w1} = .75$, $\alpha_{w2} = .80$, $\omega_{w2} = .81$, $\alpha_{w3} = .88$, and $\omega_{w3} = .89$.

Risk Internet Behaviours

An adaptation of the High-Risk Internet Behaviours Questionnaire (Álvarez-García, García, et al., 2018) was used to assess risk internet behaviours. The original scale, aimed at secondary school students, was simplified for primary school students. The revised version differs from the original, in that it consists of 7 items, instead of the original 8. Items 1, 2, 3, 4, 5 and 8 of the original scale were maintained; and items 6 and 7 were replaced by a new item ("I've

looked for new friends on the Internet"). Also, the response format for the current study was dichotomous (Yes/No). The total score for each student was obtained by adding the number of items in which the participant answered affirmatively to having performed the risk behavior referred to in that item (min 0, max 7). High scores indicate a wide variety of risk behaviors. The internal consistency of the obtained scores was $\alpha=.65$; $\omega = .68$.

Cyber-victimization

The frequency with which participants considered they had been a victim of aggression through electronic communication devices during the last 3 months was measured with a shortened version of the Cyber-victimization Questionnaire for adolescents (CYVIC; Álvarez-García et al., 2017). This shortened version comprised eight items, with two items assessing: written-verbal cyber-victimization, visual cyber-victimization, online exclusion, and impersonation. Participants responded to the items using a four-point Likert-type scale (1 = *never*, 2 = *rarely*, 3 = *often*, 4 = *always*). The total score for each student was obtained by adding the scores of the 8 items (min 8, max 32). High scores indicate high levels of cyber-victimization. The internal consistency of the obtained scores was $\alpha = .66$, $\omega = .69$.

Procedure

Once the sample was selected and the measurement instruments were prepared, permission was requested from each school management team to administer the questionnaires. Each management team was informed of the objectives and procedures of the study, its voluntary and anonymous nature, and the confidential treatment of the results. Once the school agreed to participate, informed consent was requested from the parents or guardians of the students, given their status as minors.

A three-year longitudinal study was conducted, in which students were assessed at three points in time, spaced one year apart: between February and March 2019, when they were in 4th grade of Primary Education (Wave 1); between February and March 2020, when they were in 5th grade of Primary Education (Wave 2); and between February and March 2021, when they were in 6th grade of Primary Education (Wave 3). In 4th and 5th grade, the abbreviated anxiety and self-esteem scales of the Child and Adolescent Assessment System were administered. In 6th grade, in addition to these two scales, the risk Internet behaviours and cyber-victimization scales were administered.

The questionnaires were administered in the classroom, in pen-and-paper format, during class time. Students were also informed at the time of administering the questionnaire of the anonymous, confidential, and voluntary nature of their participation. Students generally had 20 minutes to answer the questionnaires, although the time was extended in cases where it was necessary. The procedure was approved by the Research Ethics Committee of the Principality of Asturias (Project Ref. 105/19).

On March 12, 2020, due to the COVID-19 pandemic, the Government of Asturias announced that face-to-face teaching activities were called off in all educational centers in the region. The return to face-to-face classes did not commence until the beginning of the 2020-2021 school year (September 2020), with safety protocols implemented (such as the use of masks, interpersonal distance, hand hygiene, and ventilation in classrooms). With these measures, the questionnaires could be administered in Wave 3 in the same way as in the two previous waves.

Data Analysis

First, we analyzed missing values or values outside the scale. Among the participants who completed all three waves of the study, data from participants with 2 or more missing or mistaken values on any of the

scales were eliminated ($n = 14$) yielding a sample of 268 students. Once data from these 14 participants were removed, the number of missing values in the data matrix was 33 (0.3% of the total). These missing values were replaced with the mean in the item of valid values.

Preliminary analyses were performed to determine the internal consistency of the obtained scores and to descriptively analyze the sample. Subsequently, the level and developmental trajectory of anxiety and self-esteem were analyzed (Objective 1). The distribution of the scores in anxiety and self-esteem did not deviate significantly from normality at each time point, according to the recommended criteria (Byrne, 2010; George, & Mallery, 2010; Kline, 2011). Asymmetry indices of between -1.34 (self-esteem - Wave 2) and 0.54 (anxiety - Wave 1), and kurtosis indices of between -0.67 (anxiety - Wave 3) and 1.64 (self-esteem - Wave 2) were obtained. Therefore, a repeated measures ANOVA with Huynh-Feldt correction was used to analyze whether there were statistically significant differences according to grade in anxiety and self-esteem. The magnitude of the grade effect was examined using partial eta squared statistic (η^2_p). A η^2_p value less than .01 is considered very small; between .01 and .05 small; between .06 and .13 moderate; and equal to or greater than .14 large (López-Martín & Ardura-Martínez, 2023). Post-hoc comparisons with Bonferroni adjustment were used to identify the significant differences between means. The statistical software Jamovi 2.3.28 was used for these analyses.

The analyses for objectives 2 and 3 were carried out using the statistical software EQS 6.2 for Windows. Path analysis was used to examine: (a) the extent to which the theoretical model fit the empirical data and (b) the magnitude of the effects of each variable. Robust maximum likelihood was used as the estimation method (Mardia's coefficient of multivariate kurtosis = 21.56). Since a significant number of the effects in the theoretical model were not statistically significant, three post hoc models were subsequently tested in order to find the one that best fit the data obtained.

To determine the degree of fit of the tested models, we used the Satorra-Bentler scaled chi-square (χ^2_{sb})/degrees of freedom (df) ratio, the comparative fit index (CFI), the Bollen's incremental fit index (IFI), the McDonald's fit index (MFI), the root mean-square error of approximation (RMSEA), and the Akaike information criterion (AIC). Usually, it is considered that the model fit is good when χ^2/df is lower than 3 (Ruiz et al., 2010); the IFI, the MFI, and the CFI are close to .95; and RMSEA is close to .06 (Hu & Bentler, 1999). The AIC allows the models to be compared, with the one with the lowest value being preferable.

Results

Level and Development of Anxiety and Self-esteem

Figure 2 shows the level and trajectory of anxiety and self-esteem scores from 4th to 6th grade in the analyzed sample. Grade had a statistically significant effect on the trajectory of anxiety and self-esteem, mainly due to the change observed between 5th and 6th grade. For anxiety, there was a small effect of grade, $F(1.95, 521.07) = 12.34$, $p < .001$; $\eta^2_p = .04$. Anxiety increased from 4th to 6th grade, $M(SD)_{4th} = 10.36 (3.61)$; $M(SD)_{6th} = 11.46 (4.09)$; $p < .001$, which was driven by the difference between 5th and 6th, $M(SD)_{5th} = 10.44(4.03)$; $M(SD)_{6th} = 11.46 (4.09)$; $p < .001$. There were no statistically significant differences in anxiety between 4th and 5th grade, $M(SD)_{4th} = 10.36 (3.61)$; $M(SD)_{5th} = 10.44(4.03)$; $p = 1.000$. For self-esteem, there was a moderate effect of grade, $F(1.86, 496.19) = 22.01$, $p < .001$; $\eta^2_p = .08$. There was a decrease in self-esteem between the 4th and 6th grades, $M(SD)_{4th} = 17.20 (2.88)$; $M(SD)_{6th} = 15.93(3.82)$; $p < .001$, which was driven by the significant difference in self-esteem scores between 5th and 6th, $M(SD)_{5th} = 17.17 (3.12)$; $M(SD)_{6th} = 15.93 (3.82)$; $p < .001$.

There were no statistically significant differences in self-esteem between 4th and 5th grade, $M(SD)_{4th} = 17.20(2.88)$; $M(SD)_{5th} = 17.17(3.12)$; $p = 1.000$.

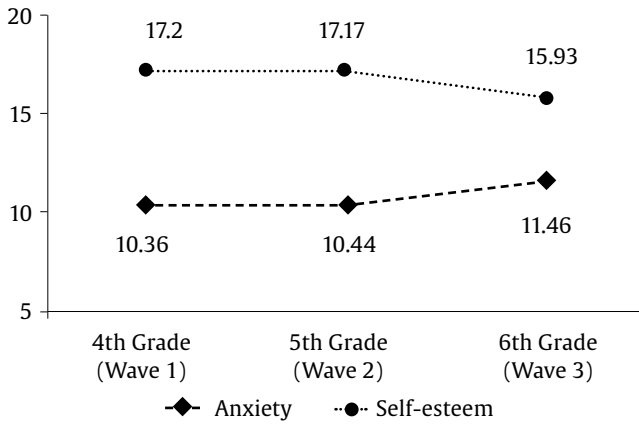


Figure 2. The Trajectory of Anxiety and Self-esteem Scores from 4th to 6th Grade ($N = 268$).

Bidirectional Effect of Anxiety and Self-esteem on Cyber-victimization

Analysis of the Theoretical Model

The fit indexes obtained with the theoretical model (Model 1) are very close to a good fit (Table 1). However, most of the effects included in the model (8 out of 15 effects) are not statistically significant (Figure 3; Table 2).

Post-hoc Modifications

Given the limitations of the theoretical model (Model 1) to represent the relationships between the variables obtained with the empirical data, three other models were specified and tested based on the results obtained.

Table 1. Goodness-of-fit Indexes of the Tested Models

Model	χ^2_{SB}	df	χ^2_{SB}/df	CFI	IFI	MFI	RMSEA (90% CI)	AIC
Model 1	34.58	10	3.46	.94	.94	.96	.10 (.06, .13)	14.58
Model 2	36.63	14	2.62	.94	.94	.96	.08 (.05, .11)	8.63
Model 3	39.48	16	2.47	.94	.94	.96	.07 (.05, .10)	7.48
Model 4	41.97	16	2.62	.93	.93	.95	.08 (.05, .11)	9.97

Note. χ^2_{SB} = Satorra-Bentler scaled chi-square; df = degrees of freedom; CFI = comparative fit index; IFI = Bollen's incremental fit index; MFI = McDonald's fit index; RMSEA = root mean-square error of approximation; AIC= Akaike information criterion.

The first of these post hoc models (Model 2) was the same as the theoretical model (Model 1) but without including the effects of anxiety and self-esteem in Wave 1 on risk behaviors and cyber-victimization in Wave 3, which are the effects that had shown lower standardized regression weights in the theoretical model. The fit indexes obtained with Model 2 were better than those obtained with Model 1 (Table 1), but the effects of both anxiety and self-esteem in Wave 2 on cyber-victimization in Wave 3 were not statistically significant (Table 2).

A second post-hoc model (Model 3) was subsequently tested. It was identical to Model 2 but the effects of both anxiety and self-esteem at Wave 2 on cyber-victimization at Wave 3 were eliminated. The fit to the data improved compared to Model 2, offering good fit indexes (Table 1).

Since the anxiety and self-esteem measures at Wave 3 were taken at the same time as the cyber-victimization measure, a third post-hoc model (Model 4) was tested to examine whether a model in which anxiety and self-esteem at Wave 3 were predictors rather than outcomes of cyber-victimization at Wave 3. The fit indexes obtained were worse than those obtained with Models 2 and 3 (Table 1). Furthermore, in this Model 4 the effect of anxiety at Wave 3 on cyber-victimization was not statistically significant ($B = 0.034$, $SE = .020$, $CR = 1.723$, $\beta = .087$, $p > .05$).

Analysis of the Model 3

As shown in Figure 4 and Table 2, anxiety and self-esteem scores correlate negatively with each other in all three academic years. That

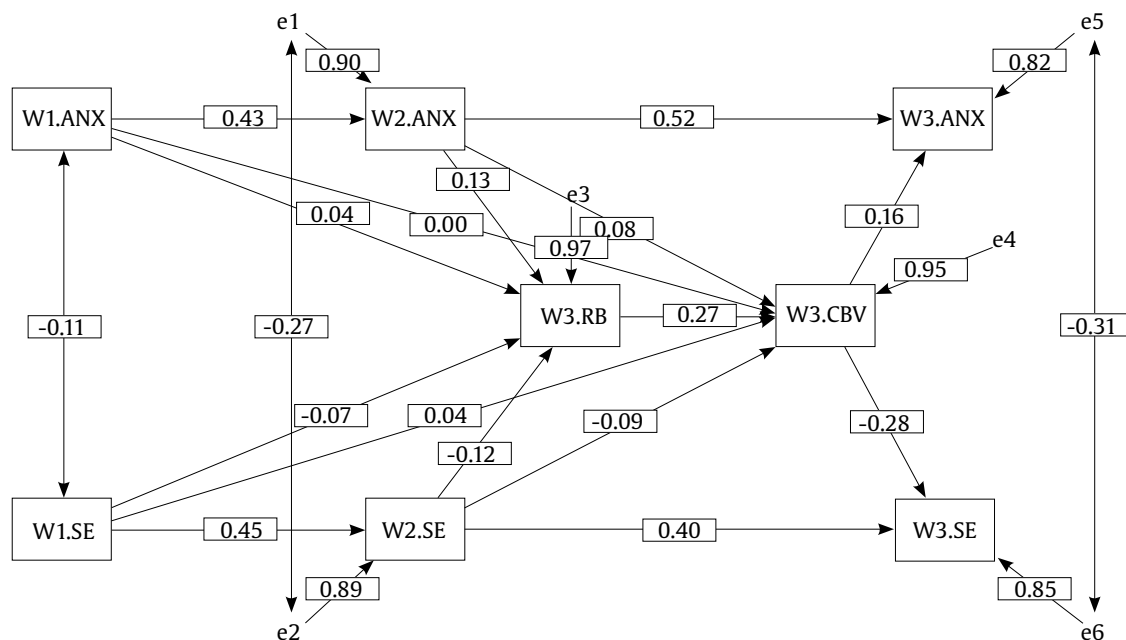


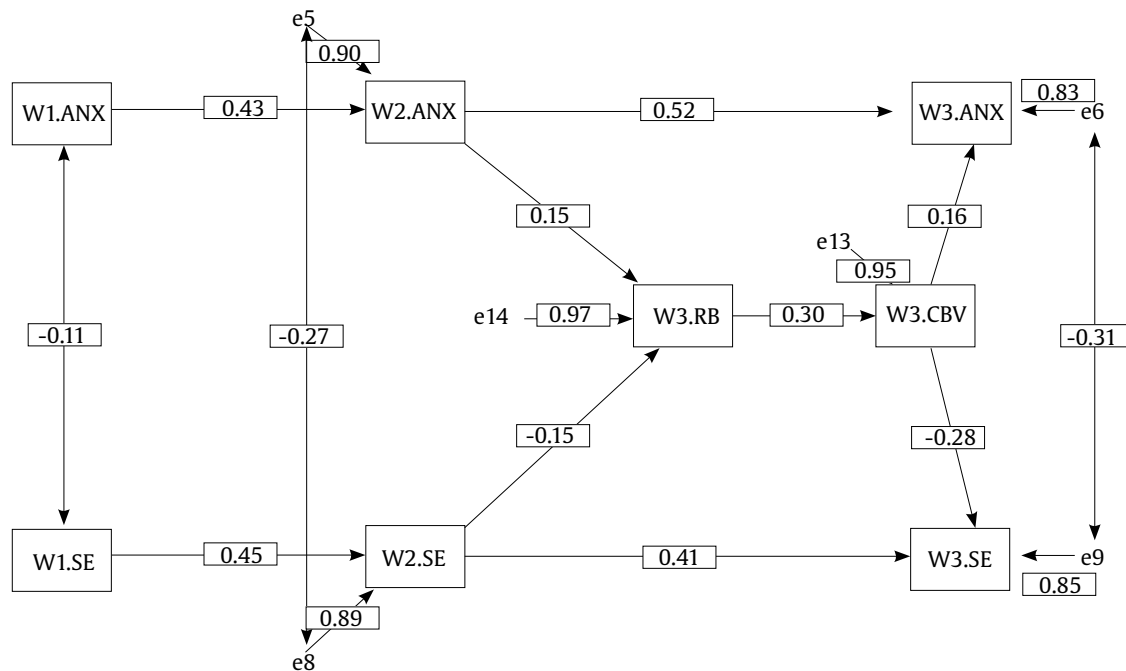
Figure 3. Standardized Path Coefficients of Theoretical Model (Model 1). Note. ANX = anxiety; SE = self-esteem; RB = risk Internet behaviors; CBV = cyber-victimization.

Table 2. Regression Weights for Models 1, 2, and 3 (N = 268)

Pathway	Model 1					Model 2					Model 3				
	B	SE	CR	β	p	B	SE	CR	β	p	B	SE	CR	β	p
W1.ANX → W2.ANX	0.470	.060	7.829	.426	*	0.470	.060	7.829	.426	*	0.470	.060	7.829	.426	*
W2.ANX → W3.ANX	0.519	.051	10.211	.520	*	0.519	.051	10.216	.520	*	0.519	.050	10.393	.524	*
W1.SE → W2.SE	0.479	.061	7.811	.451	*	0.479	.061	7.811	.451	*	0.479	.061	7.811	.451	*
W2.SE → W3.SE	0.495	.079	6.272	.401	*	0.495	.079	6.271	.401	*	0.495	.077	6.403	.405	*
W1.ANX → W3.RB	0.013	.028	0.476	.036	-										
W1.ANX → W3.CBV	0.001	.026	0.036	.002	-										
W1.SE → W3.RB	-0.032	.035	-0.937	-.070	-										
W1.SE → W3.CBV	0.021	.035	0.592	.038	-										
W2.ANX → W3.RB	0.044	.023	1.852	.131	-	0.050	.020	2.479	.150	*	0.050	.020	2.479	.150	*
W2.ANX → W3.CBV	0.030	.028	1.045	.076	-	0.029	.023	1.289	.075	-					
W2.SE → W3.RB	-0.050	.030	-1.675	-.116	-	-0.064	.026	-2.431	-.147	*	-0.064	.026	-2.431	-.147	*
W2.SE → W3.CBV	-0.048	.048	-1.012	-.095	-	-0.039	.039	-1.006	-.077	-					
W3.RB → W3.CBV	0.323	.080	4.050	.275	*	0.321	.079	4.076	.273	*	0.357	.079	4.543	.303	*
W3.CBV → W3.ANX	0.405	.141	2.870	.159	*	0.405	.141	2.871	.159	*	0.406	.138	2.930	.161	*
W3.CBV → W3.SE	-0.670	.150	-4.483	-.278	*	-0.670	.150	-4.481	-.278	*	-0.670	.146	-4.585	-.281	*

Note. B = unstandardized regression weight; SE = standard error for the unstandardized regression weight (robust statistic); CR = critical ratio (robust statistic); β = standardized regression weight; p = probability level; ANX = anxiety; SE = self-esteem; RB = risk Internet behaviors; CBV = cyber-victimization.

*p < .05.

**Figure 4.** Standardized Path Coefficients of Model 3.

Note. ANX = anxiety; SE = self-esteem; RB = risk Internet behaviors; CBV = cyber-victimization.

is, high levels of anxiety are associated with low levels of self-esteem.

Anxiety in 4th grade has a positive and moderate effect on anxiety in 5th grade, and anxiety in 5th grade has an effect on anxiety in 6th grade. That is, high scores in anxiety in one grade are associated with high scores in the following grade. Similarly, self-esteem in 4th grade has a positive and moderate effect on self-esteem in 5th grade, and self-esteem in 5th grade has an effect on self-esteem in 6th grade. That is, low scores in self-esteem in one grade are associated with low scores grade.

The effect of anxiety and self-esteem in 5th grade on cyber-victimization in 6th grade is more indirect and mediated by risk Internet behaviors. Anxiety (positively) and self-esteem (negatively) in 5th grade have a small but statistically significant effect on risk

Internet behaviors in 6th grade. That is, both a high score in anxiety and a low score in self-esteem in 5th grade are associated with a high score in risk Internet behaviors in 6th grade. In turn, risky Internet behaviors in 6th grade have a positive and moderate effect on cyber-victimization in the same grade. That is, high scores in risk Internet behaviors in 6th grade are associated with high scores in cyber-victimization in the same grade.

Finally, cyber-victimization in 6th grade has a small positive effect on anxiety in 6th grade and a small negative effect on self-esteem in 6th grade. That is, a high score in cyber-victimization in 6th grade is associated with a high score in anxiety and a low score in self-esteem in 6th grade.

Discussion

The first aim of this work was to analyze the level and trajectory of anxiety and self-esteem in a sample of preadolescents, from 4th to 6th grade of Primary Education in Spain. A small increase in anxiety and a small decrease in self-esteem were found from 4th to 6th grade. Specifically, the change was observed from 5th to 6th grade, as no significant differences were observed from 4th to 5th grade. This result differs from those obtained in some previous studies. For example, [Van Oort et al. \(2009\)](#) found a decrease in anxiety in Dutch boys and girls from 10 to 13 years of age. Also, [Orth et al. \(2018\)](#), in a meta-analysis of longitudinal studies, concluded that average levels of self-esteem increased from age 4 to 11 years and remained stable from age 11 to 15. The unexpected result may be due, at least partially, to the exceptional circumstances of the COVID-19 pandemic. In Spain, the hardest period of confinement took place from March to June 2020, meaning that Waves 1 and 2 (4th and 5th grades) occurred before confinement, and Wave 3 (6th grade) occurred after confinement. Confinement was a highly stressful situation and exposure to such adverse and stressful situations constitutes an important risk factor for anxiety and low self-esteem ([Elmore & Crouch, 2020](#)). The result obtained in the present study of an increase in anxiety and a decrease in self-esteem after confinement is consistent with national and international data on the increase in mental health problems after confinement ([Ministry of Health, 2023](#); [OECD, 2023](#)).

The second aim of this work was to analyze the effect of anxiety and self-esteem in previous years (4th and 5th grades) on cyber-victimization in 6th grade of Primary Education, both directly and indirectly through risk Internet behaviors. The hypothesis was that anxiety in both 4th and 5th grade would have a direct positive effect on cyber-victimization in 6th grade, and that self-esteem in 4th and 5th grade would have a direct negative effect on cyber-victimization in 6th grade, and that these relationships would be mediated by risk online behaviors. This hypothesis was partially confirmed. No direct effects of anxiety and self-esteem in previous grades was found on cyber-victimization in 6th grade. However, there was evidence of an indirect effect via risk Internet behaviors. The results obtained show, on the one hand, that the predictive capacity of both anxiety and self-esteem is greater the closer in time to the moment in which cyber-victimization is measured. On the other hand, the obtained results show the importance of risk Internet behaviors as a mediating variable in this relationship. Both a high score in anxiety and a low score in self-esteem in 5th grade are associated with a high score in risk Internet behaviors in 6th grade. In turn, high scores in risk Internet behaviors in 6th grade are associated with high scores in cyber-victimization in that same grade. These results are in line with previous evidence, which quite consistently indicates that: (a) anxiety increases and self-esteem decreases the probability of cyber-victimization ([Agustiniingsih et al., 2024](#); [Molero et al., 2022](#)), (b) anxiety increases and self-esteem decreases the probability of engaging in risk behaviors on the Internet ([Leighton et al., 2018](#); [Seabrook et al., 2016](#); [Wallace et al., 2021](#); [Yadlosky et al., 2023](#)), and (c) risk Internet behaviors increase the probability of being a victim of cyber-aggressions ([Chen et al., 2017](#); [Koutamanis et al., 2015](#)).

The third aim of this work was to analyze the effect of cyber-victimization in 6th grade of Primary School on anxiety and self-esteem in that same year. As expected, the results show that cyber-victimization in 6th grade is associated with an increase in anxiety and a decrease in self-esteem in 6th grade. These results are in line with previous evidence which suggests there is a bidirectional and positive relationship between anxiety and cyber-victimization ([Marciano et al., 2020](#); [Molero et al., 2022](#)), and a bidirectional and negative relationship between self-esteem and cyber-victimization ([Agustiniingsih et al., 2024](#)). Being a victim of aggression is a stressful situation, but being a victim of online aggression increase the victim's anxiety even more as they may not feel in control of what is happening

to them due to the unique characteristics of cyberbullying. Also, the experiences of victimization may reduce an individual's self-esteem due to their perceived lack of control and the possible internalization of their experiences.

Together, the findings underscore the importance of adolescents internalizing symptoms for cyber-victimization and that online risk behaviors mediate this relationship. Consequently, the results of this work have several practical implications. First, they show the importance of preventing, or early intervention to address, risk Internet behaviors and cyber-victimization. It is important to educate preadolescents in values, digital citizenship, and a safe, responsible and respectful use of social networks. To tackle this complex problem, it is important to acknowledge not only the role of the school, but also the role of the families and the models transmitted through entertainment media. Being a victim of online aggression increases the likelihood of being a cyber-aggressor ([Álvarez-García, Núñez, et al., 2018](#)), and of other serious problems in which anxiety and depressive symptoms play an important role and which can lead to suicidal or other self-harming thoughts or behaviors ([Kreski et al., 2021](#)).

A second practical implication of this work is the importance of fostering self-esteem and preventing anxiety from an early age. For example, to promote social skills and integration of the child into the peer group; to provide children with strategies that allow them to effectively solve their problems; to serve as a guide and support for the child to address their problems, with the aim of progressively doing so independently; to avoid excessive pressure and demands; to use positive messages, praise for what is done well, and show affection; or for the adult to serve as a positive example in difficult situations (staying calm, showing patience, handling frustration, etc.).

A third and final practical implication of this work is the importance of preventing or breaking the circle between anxiety/low self-esteem and cyber-victimization. On the one hand, low self-esteem and anxiety in social situations can lead to a deficit in social skills and affect a preference for seeking new friends in online environments and a greater likelihood of engaging in risk behaviors on the Internet ([Leighton et al., 2018](#); [Seabrook et al., 2016](#)). Low self-esteem and anxiety may be also associated with personal characteristics and a deficit in social skills that can affect how individuals interact with others (e.g., the way of presenting themselves, or what they share online), which may mean they are more likely to receive negative peer reactions ([Koutamanis et al., 2015](#)). Likewise, high levels of anxiety can lead to difficulties in emotional regulation ([Yadlosky et al., 2023](#)), which in turn increase the likelihood of risk behaviors ([Álvarez-García et al., 2019](#); [Wallace et al., 2021](#)) and therefore cyber-victimization. On the other hand, being a victim of cyberbullying is an aversive and stressful situation, which can generate anxiety and lower self-esteem. The victim may internalize the negative comments and evaluations received ([Van Geel et al., 2018](#)) and even assume that it is their fault for being a victim. For example, receiving negative feedback on the online profiles on networking sites decreased adolescents' social self-esteem and well-being ([Valkenburg et al., 2006](#)). Being victimized through social media can have an even greater impact than being victimized in a face-to-face setting, as the victim may feel especially helpless and unable to control the situation because the aggressor can act anonymously, at any time and place, without the ability to respond on their part, and with the possibility of the content being disseminated quickly and massively ([Hinduja & Patchin, 2014](#)). Moreover, the perceived lack of control is a risk factor for anxiety ([Gallagher et al., 2014](#)).

From a psychoeducational point of view, the results of this study contribute to guiding educational policies and intervention programs to tackle bullying. Focusing on educational policies, the findings highlight the appropriateness of integrating the development of digital and socio-emotional competences into the educational curriculum from an early age; the importance of considering

psychological variables such as anxiety and self-esteem in the intervention protocol in cases of cyberbullying, both in early detection and in psychological support for the victim; and the importance of training teachers in the early identification of signs of anxiety, low self-esteem, and victimization in students. Regarding preventive intervention programs, the results obtained suggest the importance of implementing such programs at ages prior to the autonomous and widespread use of mobile phones and the Internet. Based on the current findings, preventative intervention programs should not only focus on the use of social networks and digital media, but also on socio-emotional aspects and coping skills; and highlight the possible cycle between anxiety/low self-esteem and cyber-victimization.

From the perspective of Legal Psychology, the findings of this study contribute to highlighting the need to adapt existing laws to cover the digital environment; and serve as a basis for making judicial decisions. From the perspective of Forensic Psychology, the results of this study can serve as a basis for expert testimonies of forensic psychologists in legal or disciplinary proceedings, as a scientific basis for the psychological impact of experiencing cyber-aggressions; to guide the assessment of psychological distress associated with cyber-bullying, focusing on variables such as anxiety or self-esteem to determine the impact and severity of the damage caused; and to guide the needs for treatment and psychological support. This study therefore offers information of interest to understand, prevent, and address the problem of cyber-victimization among peers in preadolescence from a legal and psychological perspective, thus contributing to the protection of minors in the digital environment.

Although this work represents a contribution to the field of study, with important practical implications, it is necessary to acknowledge certain limitations and propose corresponding lines of improvement for the future. First, the study was carried out with a sample recruited from a specific population, limited to specific ages and geographic area. Looking to the future, it would be interesting to test these models in other ages and contexts. Second, the tested models include a limited number of explanatory variables and the effects tended to be small or moderate. One explanation for this is that the variables explained in the models (anxiety, self-esteem, risk Internet behavior, and cyber-victimization) depend on multiple explanatory variables, of which only a limited number have been included in the models. Future studies should try to test models that include other additional explanatory variables, which are also relevant (Barlett et al., 2024).

Conflict of Interest

The authors of this article declare no conflict of interest.

References

- Agustiniingsih, N., Yusuf, A., & Ahsan, A. (2024). Relationships among self-esteem, bullying, and cyberbullying in adolescents: A systematic review. *Journal of Psychosocial Nursing and Mental Health Services*, 62(5), 11-17. <https://doi.org/10.3928/02793695-20231013-01>
- Álvarez-García, D., García, T., & Suárez-García, Z. (2018). The relationship between parental control and high-risk internet behaviours in adolescence. *Social Sciences*, 7(6), 87. <https://doi.org/10.3390/socsci7060087>
- Álvarez-García, D., Núñez, J. C., Barreiro-Collazo, A., & García, T. (2017). Validation of the Cybervictimization Questionnaire (CYVIC) for adolescents. *Computers in Human Behavior*, 70, 270-281. <https://doi.org/10.1016/j.chb.2017.01.007>
- Álvarez-García, D., Núñez, J. C., García, T., & Barreiro-Collazo, A. (2018). Individual, family, and community predictors of cyber-aggression among adolescents. *European Journal of Psychology Applied to Legal Context*, 10(2), 79-88. <https://doi.org/10.5093/ejpalc2018a8>
- Álvarez-García, D., Núñez, J. C., González-Castro, P., Rodríguez, C., & Cerezo, R. (2019). The effect of parental control on cyber-victimization in adolescence: The mediating role of impulsivity and high-risk behaviors. *Frontiers in Psychology*, 10, 1159. <http://doi.org/10.3389/fpsyg.2019.01159>
- Barlett, C. P., Kowalski, R. M., & Wilson, A. M. (2024). Meta-analyses of the predictors and outcomes of cyberbullying perpetration and victimization while controlling for traditional bullying perpetration and victimization. *Aggression and Violent Behavior*, 74, 101886. <https://doi.org/10.1016/j.avb.2023.101886>
- Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Routledge.
- Chen, L., Ho, S. S., & Lwin, M. O. (2017). A meta-analysis of factors predicting cyberbullying perpetration and victimization: From the social cognitive and media effects approach. *New Media & Society*, 19(8), 1194-1213. <https://doi.org/10.1177/14614448166634037>
- Christina, S., Magson, N. R., Kakar, V., & Rapee, R. M. (2021). The bidirectional relationships between peer victimization and internalizing problems in school-aged children: An updated systematic review and meta-analysis. *Clinical Psychology Review*, 85, 101979. <https://doi.org/10.1016/j.cpr.2021.101979>
- Elmore, A. L., & Crouch, E. (2020). The association of adverse childhood experiences with anxiety and depression for children and youth, 8 to 17 years of age. *Academic Pediatrics*, 20(5), 600-608. <https://doi.org/10.1016/j.acap.2020.02.012>
- Fernández-Pinto, I., Santamaría, P., Sánchez-Sánchez, F., Carrasco, M. A., & del Barrio, V. (2015). *SENA. Sistema de Evaluación de Niños y Adolescentes. Manual de aplicación, corrección e interpretación* [SENA. System of Evaluation for Children and Adolescents. Manual of application, correction and interpretation]. TEA Ediciones.
- Gallagher, M. W., Bentley, K. H., & Barlow, D. H. (2014). Perceived control and vulnerability to anxiety disorders: A meta-analytic review. *Cognitive Therapy and Research*, 38(6), 571-584. <https://doi.org/10.1007/s10608-014-9624-x>
- Garaigordobil, M., & Machimbarrena, J. M. (2019). Victimization and perpetration of bullying/cyberbullying: Connections with emotional and behavioral problems and childhood stress. *Psychosocial Intervention*, 28(2), 67-73. <https://doi.org/10.5093/pi2019a3>
- George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference* (10th ed.). Pearson.
- Hinduja, S., & Patchin, J. W. (2014). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Corwin press.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Hurrelmann, K., & Richter, M. (2006). Risk behaviour in adolescence: the relationship between developmental and health problems. *Journal of Public Health*, 14, 20-28. <https://doi.org/10.1007/s10389-005-0005-5>
- Jacobson, N. C., & Newman, M. G. (2017). Anxiety and depression as bidirectional risk factors for one another: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 143(11), 1155. <https://doi.org/10.1037/bul0000111>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (5th ed., pp. 3-427). The Guilford Press.
- Koutamanis, M., Vossen, H. G., & Valkenburg, P. M. (2015). Adolescents' comments in social media: Why do adolescents receive negative feedback and who is most at risk? *Computers in Human Behavior*, 53, 486-494. <https://doi.org/10.1016/j.chb.2015.07.016>
- Kreski, N. T., Chen, Q., Olfson, M., Cerdá, M., Hasin, D., Martins, S. S., Mauro, P. M., & Keyes, K. M. (2021). Trends in adolescent online and offline victimization and suicide risk factors. *Pediatrics*, 148(3), e2020049585. <https://doi.org/10.1542/peds.2020-049585>
- Lack, C. W. (in press). Anxiety disorders. Diagnosis, clinical features, and epidemiology. *Psychiatric Clinics of North America*. <https://doi.org/10.1016/j.psc.2024.04.008>
- Lahey, B. B. (2015). Why are children who exhibit psychopathology at high risk for psychopathology and dysfunction in adulthood? *JAMA Psychiatry*, 72(9), 865-866. <https://doi.org/10.1001/jamapsychiatry.2015.0798>
- Lange, K. W. (2021). Coronavirus disease 2019 (COVID-19) and global mental health. *Global Health Journal*, 5(1), 31-36. <https://doi.org/10.1016/j.glohj.2021.02.004>
- Leighton, D. C., Legate, N., LePine, S., Anderson, S. F., & Grahe, J. (2018). Self-esteem, self-disclosure, self-expression, and connection on Facebook: A collaborative replication meta-analysis. *Psi Chi Journal of Psychological Research*, 23(2), 98-109. <https://doi.org/10.24839/2325-7342.JN23.2.98>
- López-Martín, E., & Ardura-Martínez, D. (2023). The effect size in scientific publication. *Educación XXI*, 26(1), 9-17. <https://doi.org/10.5944/educxx1.36276>
- Marciano, L., Schulz, P. J., & Camerini, A. (2020). Cyberbullying perpetration and victimization in youth: A meta-analysis of longitudinal studies. *Journal of Computer-Mediated Communication*, 25(2), 163-181. <https://doi.org/10.1093/jcmc/zmz031>
- Ministry of Health. (2023). *Informe anual del Sistema Nacional de Salud 2022* [Annual report of the National Health System 2022]. <https://www.sanidad.gob.es/estadEstudios/estadisticas/sisInfSanSNS/tablasEstadisticas/InfAnSNS.htm>
- Moleró, M. M., Martos, A., Barragán, A. B., Pérez-Fuentes, M. C., & Gázquez, J. J. (2022). Anxiety and depression from cybervictimization in adolescents: A meta-analysis and meta-regression study. *European*

- Journal of Psychology Applied to Legal Context*, 14(1), 42-50. <https://doi.org/10.5093/ejpalc2022a5>
- Mullan, V. M. R., Golm, D., Juhl, J., Sajid, S., & Brandt, V. (2023) The relationship between peer victimisation, self-esteem, and internalizing symptoms in adolescents: A systematic review and meta-analysis. *PLoS ONE*, 18(3), e0282224. <https://doi.org/10.1371/journal.pone.0282224>
- Mulraney, M., Coghill, D., Bishop, C., Mehmed, Y., Sciberras, E., Sawyer, M., Efron, D., & Hiscock, H. (2021). A systematic review of the persistence of childhood mental health problems into adulthood. *Neuroscience & Biobehavioral Reviews*, 129, 182-205. <https://doi.org/10.1016/j.neubiorev.2021.07.030>
- Ochoa-Fuentes, D. A., Gutiérrez-Chablé, L. E., Méndez-Martínez, S., García-Flores, M. A., & Ayón-Aguilar, J. (2022) Confinamiento y distanciamiento social: estrés, ansiedad, depresión en niños y adolescentes [Confinement and social distancing: Stress, anxiety, depression in children and adolescents]. *Revista Médica del Instituto Mexicano del Seguro Social*, 60(3), 338-344. <https://pmc.ncbi.nlm.nih.gov/articles/PMC10396026/pdf/04435117-60-3-338.pdf>
- Organization for Economic Cooperation and Development (2023). *Health at a glance 2023: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/7a7afb35-en>
- O'Leary, O. F., Codagnone, M. G., & Cryan, J. F. (2020). Revisiting the behavioral genetics of serotonin: Relevance to anxiety and depression. In M. G. Codagnone & J. F. Cryan (Eds.), *Handbook of behavioral neuroscience* (pp. 665-709). Elsevier. <https://doi.org/10.1016/B978-0-444-64125-0.00038-4>
- Orchard, F., Pass, L., Marshall, T., & Reynolds, S. (2017). Clinical characteristics of adolescents referred for treatment of depressive disorders. *Child and Adolescent Mental Health*, 22(2), 61-68. <https://doi.org/10.1111/camh.12178>
- Orth, U., Erol, R. Y., & Luciano, E. C. (2018). Development of self-esteem from age 4 to 94 years: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 144(10), 1045-1080. <https://doi.org/10.1037/bul0000161>
- Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect*, 34(4), 244-52. <https://doi.org/10.1016/j.chiabu.2009.07.009>
- Robins, R. W., & Trzesniewski, K. H. (2005). Self-esteem development across the lifespan. *Current Directions in Psychological Science*, 14(3), 158-162. <https://doi.org/10.1111/j.0963-7214.2005.00353.x>
- Ruiz, M. A., Pardo, A., & San Martín, R. (2010). *Modelos de ecuaciones estructurales* [Models of structural equations]. *Papeles del Psicólogo*, 31(1), 34-45.
- Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social networking sites, depression, and anxiety: A systematic review. *JMIR Mental Health*, 3(4), 50. <http://doi.org/10.2196/mental.5842>
- Soleimani, M. A., Pahlevan Sharif, S., Bahrami, N., Yaghoobzadeh, A., Allen, K. A., & Mohammadi, S. (2019). The relationship between anxiety, depression and risk behaviors in adolescents. *International Journal of Adolescent Medicine and Health*, 31(2), 20160148. <https://doi.org/10.1515/ijamh-2016-0148>
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin*, 139(1), 213-240. <https://doi.org/10.1037/a0028931>
- Valkenburg, P. M., Peter, J., & Schouten, A. P. (2006). Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *Cyberpsychology & Behavior: The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, 9(5), 584-590. <https://doi.org/10.1089/cpb.2006.9.584>
- Van Geel, M., Goemans, A., Zwaanswijk, W., Gini, G., & Vedder, P. (2018). Does peer victimization predict low self-esteem, or does low self-esteem predict peer victimization? Meta-analyses on longitudinal studies. *Developmental Review*, 49, 31-40. <https://doi.org/10.1016/j.dr.2018.07.001>
- Van Oort, F. V., Greaves-Lord, K., Verhulst, F. C., Ormel, J., & Huizink, A. C. (2009). The developmental course of anxiety symptoms during adolescence: The TRAILS study. *Journal of Child Psychology and Psychiatry*, 50(10), 1209-1217. <https://doi.org/10.1111/j.1469-7610.2009.02092.x>
- Wallace, G. T., Henry, K. L., Barrett, K. C., & Conner, B. T. (2021). Personality and emotion dysregulation profiles predict differential engagement in a wide range of health-risk behaviors. *Journal of American College Health*, 71(6), 1740-1752. <https://doi.org/10.1080/07448481.2021.1947302>
- Wild, L. G., Flisher, A. J., Bhana, A., & Lombard, C. (2004). Associations among adolescent risk behaviours and self-esteem in six domains. *Journal of Child Psychology and Psychiatry*, 45(8), 1454-1467. <https://doi.org/10.1111/j.1469-7610.2004.00330.x>
- Windle, M. (1994). Substance use, risky behaviors, and victimization among a US national adolescent sample. *Addiction*, 89(2), 175-182. <https://doi.org/10.1111/j.1360-0443.1994.tb00876.x>
- Yadlosky, L. B., Mowrey, W. B., & Pimentel, S. S. (2023). Risky business: Considerations of emotion regulation and high-risk behaviors in anxious adolescents. *Journal of Anxiety Disorders*, 99, 102760. <https://doi.org/10.1016/j.janxdis.2023.102760>
- Yeo, G. H., Tan, C. H. D., & Baumeister, R. F. (2023). How do aspects of selfhood relate to depression and anxiety among youth? A meta-analysis. *Psychological Medicine*, 53(11), 4833-4855. <https://doi.org/10.1017/S0033291723001083>

