Journal of Adolescence

WILEY

Foundation for PSA

RESEARCH ARTICLE OPEN ACCESS

Bidirectional Associations Between Cyberbullying Victimization, Non-Suicidal Self-Injury, and Depressive Symptoms in Adolescents

Esther Calvete | Amaya Ayala | Aitor Jiménez-Granado | Izaskun Orue

Department of Psychology, Faculty of Health Sciences, University of Deusto, Bilbao, Spain

Correspondence: Esther Calvete (esther.calvete@deusto.es)

Received: 25 October 2024 | **Revised:** 11 July 2025 | **Accepted:** 18 August 2025

Funding: This study was supported by a grant from Basque Country (Ref. IT1532-22) and from the Spanish Government (PROEMO—RED2022-134247-T).

Keywords: adolescents | cyberbullying victimization | depression | gender | non-suicidal self-injury

ABSTRACT

Introduction: This study aimed to examine the reciprocal longitudinal relationships between cyberbullying victimization, depressive symptoms, and nonsuicidal self-injury (NSSI) during adolescence—a developmental period marked by notable increases in both depressive symptoms and NSSI behaviors. Additionally, gender differences in these associations were explored.

Methods: A total of 909 Spanish adolescents (Mage = 14.64, SD = 1.62; 51.8% boys, 48.2% girls) completed measures of NSSI, cyberbullying victimization, and depressive symptoms across three waves at 3-month intervals, beginning in Autumn 2021.

Results: A random-intercept cross-lagged panel model (RI-CLPM) provided mixed evidence for the hypothesized reciprocal associations. Within-person increases in cyberbullying victimization predicted subsequent increases in depressive symptoms. In turn, elevations in depressive symptoms predicted increases in both NSSI and cyberbullying victimization. However, within-person increases in NSSI did not predict subsequent changes in the other variables. At the between-person level, NSSI and depressive symptoms were strongly associated, particularly among girls. Additionally, the pathway from depressive symptoms to cyberbullying victimization was stronger in boys than in girls.

Conclusions: These findings underscore the complex interplay between cyberbullying victimization, depression, and NSSI during adolescence. While cyberbullying victimization and depressive symptoms showed reciprocal associations, NSSI did not predict future changes in depression or victimization. Results also suggest that depressive symptoms may contribute to increased cybervictimization, particularly among adolescent boys.

1 | Introduction

Non-suicidal self-injury (NSSI), consisting of the "direct and deliberate destruction of one's own body tissue in the absence of suicidal intent" (Nock and Favazza 2009, p. 1), has received considerable attention in recent years. Research has shown an increase in this behavior, especially among adolescents (Faura-Garcia et al. 2021a), with a recent meta-analysis reporting a prevalence rate of 23.2% in the nonclinical population (Xiao et al. 2022). The authors also reported that the frequency of NSSI was higher in girls (25.4%) than in boys (22%).

One of the most notable frameworks for understanding NSSI is the Four Function Model (Nock and Prinstein 2004), which classifies the functions of NSSI in four domains based on two dimensions: interpersonal versus intrapersonal and positive

versus negative reinforcement. This model suggests that NSSI can be used to achieve a desired state (positive reinforcement) or eliminate an undesired state (negative reinforcement). These functions are further categorized into interpersonal (e.g., to avoid interpersonal stressors) or intrapersonal (e.g., to improve mood) domains. A meta-analysis concluded that intrapersonal functions, particularly those related to emotion regulation, are more common than interpersonal functions and that functions related to avoiding internal negative states are especially prevalent (Taylor et al. 2018). Therefore, it is not surprising that many theoretical models and studies of NSSI emphasize the emotion-regulation or avoidance functions of NSSI (e.g., Calvete et al. 2024; Chapman et al. 2006; Hasking et al. 2017; Klonsky 2011).

Based on these models of NSSI, it has been suggested that negative events such as cyberbullying victimization can increase the likelihood of NSSI by exacerbating depressive symptoms (Faura-Garcia et al. 2021b; Liu et al. 2023). Consequently, in the context of peer cybervictimization, NSSI may serve as a maladaptive strategy for coping with depressive symptoms. Several studies have examined whether the relationship between cyberbullying victimization and self-harm is mediated by depressive symptoms, most being cross-sectional. For example, two cross-sectional studies with adolescent samples found that cyberbullying victimization was associated with higher frequencies of NSSI, and this association was partially explained by depressive symptom levels (Faura-Garcia et al. 2021b; Liu et al. 2023). A similar longitudinal study was conducted in China with a sample of 577 adolescents, which included only two waves separated by a 6-month interval. The authors concluded that there was a significant and positive relationship between both cyberbullying victimization and depressive symptoms at baseline and NSSI at follow-up (Li et al. 2023). Therefore, longitudinal evidence for the mediational hypothesis is still needed.

In contrast to studies that have examined unidirectional relationships from victimization and depression to NSSI, various models of psychopathology have emphasized that associations between stressors, psychological problems, and vulnerabilities are often not simple and unidirectional, but may be bidirectional (Hankin et al. 2016; Masten and Cicchetti 2010). Therefore, the associations between victimization, depressive symptoms, and NSSI could be reciprocal. In this way, depressive symptoms may increase the risk of NSSI, as suggested by major NSSI models (Klonsky 2011; Nock and Prinstein 2004), but at the same time, NSSI behaviors may worsen depressive symptoms. This may occur because the wounds and injuries caused by NSSI could lead to dissatisfaction with one's body, thereby increasing distress levels (Buelens et al. 2019), or through an increase in self-criticism (Daly and Willoughby 2019). Several studies have examined the reciprocity between depressive symptoms and mood in general, and NSSI. A longitudinal study with two annual assessments in a community sample of adolescents found that in girls, but not in boys, depressive symptoms predicted increased self-harm 1 year later, and self-harm predicted increased depressive symptoms (Lundh et al. 2011). Nevertheless, they did not employ cross-lagged models but rather separate models to predict each outcome. Later, several studies using cross-lagged designs with two waves spaced 1 year apart found bidirectional associations between depressive symptoms and/or distress and NSSI (Buelens et al. 2019; Faura-Garcia et al. 2024; Hu et al. 2024). However, there are also inconclusive results. For example, both in a study conducted in Sweden with adolescents in 7th grade (Marshall et al. 2013) and another study with younger children in 5th grade in China (Gao et al. 2020), depression at time 1 predicted NSSI at time 2, but this effect was not replicated from time 2 to time 3. Additionally, neither study found that NSSI predicted depressive symptoms in the subsequent wave.

At the same time, although numerous studies have examined how stressful experiences, such as peer victimization, can increase the risk of NSSI, the reverse association could also be possible. Several mechanisms could explain this reverse association. It has been proposed that NSSI can lead to feelings of shame and social isolation (Klonsky 2009). These consequences, along with the stigmatization of NSSI behaviors, may result in rejection by other adolescents (De Luca et al. 2022), which could increase the risk of future victimization. This would be consistent with the stress generation model (Hammen 2005), which was initially proposed to explain the bidirectional relationships between depression and stressors. According to this model, individuals are not passive victims of circumstances but can influence dependent stressors through their behaviors and emotions. For example, adolescents experiencing depressive symptoms may appear lonely and sad, making them seem less attractive to their peers, which could lead to rejection. Specifically, in support of this model, numerous studies have found that peer victimization experiences can increase depressive symptoms, while depressive symptoms, in turn, can increase the risk of future victimization (Averdijk et al. 2016; Wang et al. 2024), including cyberbullying victimization (Gámez-Guadix et al. 2013; Morea and Calvete 2022; Rose and Tynes 2015).

However, the extension of this model to NSSI—that is, the hypothesis that NSSI may not only result from victimization but also increase the risk of future victimization—has been the subject of relatively few studies, and the findings are contradictory. Some studies have found evidence for a bidirectional relationship. For example, in a three-wave study with adolescents, spaced 6 months apart, a consistent bidirectional cycle between bullying victimization and NSSI was observed across waves (Wang et al. 2024). However, other studies have only found evidence of NSSI predicting future peer victimization. For example, in a six-wave longitudinal study with annual assessments, the authors found a significant within-person cross-lagged effect from NSSI to peer victimization; however, the reverse effect—from peer victimization to NSSI—was not observed (De Luca et al. 2022). Finally, in a three-wave study on adolescents and young adults (ages 9 to 19 at wave 1), with measurements every 2 years, no longitudinal associations were found between NSSI and peer victimization (Bilgin et al. 2022). Thus, previous results regarding the bidirectionality between NSSI and victimization remain inconclusive and have focused exclusively on traditional forms of peer victimization, without specifically addressing cyberbullying victimization, which may involve distinct relationships.

Gender differences in NSSI, depressive symptoms, and cyberbullying victimization have been subject of extensive research in recent years. In particular, reviews and meta-analyses have found

that girls tend to report higher levels of NSSI (Farkas et al. 2023; Xiao et al. 2022), depressive symptoms (Salk et al. 2017), and cybervictimization (Barlett et al. 2024; Guo 2016). This has prompted interest in exploring whether the associations between these variables could also be moderated by gender.

Regarding the associations between peer victimization and depression, a meta-analytic study found that girls are more prone to developing depressive symptoms following experiences of cybervictimization (Hu et al. 2021). However, when examining the prediction of peer victimization from depressive symptoms, recent studies have yielded mixed results. While some studies have found no significant gender differences (Forbes et al. 2019; He et al. 2022), another study indicated that depressive symptoms predicted peer victimization only in boys due to the perception of "male weakness" by their peers (Wang et al. 2024).

Regarding the associations between peer victimization and NSSI, a meta-analysis—focused mainly on cross-sectional studies—concluded that there were no significant gender differences (Huang et al. 2022). However, in relation to other stressors, Burke et al. (2015) found that NSSI predicted new social stressors in girls but not in boys, arguing that motivation for NSSI is more related to social issues in girls.

Regarding the association between depression and NSSI, the results are similarly inconclusive. For example, Marshall et al. (2013) found that the associations were similar in boys and girls, although almost all the significant associations in their study were cross-sectional. In another study, depressive symptoms consistently predicted NSSI over time in girls, whereas for boys the association was significant only between the first two waves of the study (Gao et al. 2020). With regard to the inverse relationship (i.e., NSSI to depressive symptoms), a recent longitudinal study revealed no gender differences (Faura-Garcia et al. 2024). However, another longitudinal study found that NSSI predicted depressive symptoms only in girls (Lundh et al. 2011).

2 | The Current Study

Grounded in cascade models of psychopathology, this study primarily aimed to assess the bidirectional predictive relationships between cyberbullying victimization, depressive symptoms, and NSSI during adolescence, a developmental stage in which both depressive symptomatology and NSSI behaviors increase dramatically (Daly 2022; Xiao et al. 2022). Although findings have been mixed, several previous longitudinal studies have provided preliminary evidence supporting the existence of bidirectional relationships between depressive symptoms and NSSI (Buelens et al. 2019; Faura-Garcia et al. 2024; Hu et al. 2024). In contrast, research on the bidirectional relationships between cyberbullying victimization and NSSI has been limited and inconclusive (Bilgin et al. 2022; De Luca et al. 2022; Wang et al. 2024). While most prior longitudinal studies have employed longer intervals between assessments (e.g., 1 year), the present study examined the bidirectional relationships between victimization, depressive symptoms, and NSSI using shorter intervals (3 months) to better capture the short-term dynamics.

Finally, a secondary aim of this study was to explore potential gender differences in the relationships between the study variables. Previous longitudinal studies have yielded mixed results regarding potential gender differences in the association between peer victimization, NSSI, and depressive symptoms (Faura-Garcia et al. 2024; Huang et al. 2022; Lundh et al. 2011; Wang et al. 2024), so this objective is exploratory.

3 | Materials and Methods

3.1 | Participants

The sample for this study was part of a larger project involving intervention in cyberbullying victimization (Calvete et al. 2022). The sample consisted of 909 adolescents (51.8% boys and 48.2% girls) recruited from five schools, both public and private, in Bizkaia (Spain). Participants completed self-report questionnaires over three waves spaced 3 months apart: Wave 1 (W1), Wave 2 (W2), and Wave 3 (W3). Data collection began on Autumn 2021. The mean age of the participants was 14.64 years (SD = 1.62; range = 11–17) at W1. According to the Instituto Nacional de Estadística (2011) criteria, the reported professions of participants' parents were as follows: scientific and intellectual professionals (40.41%), restaurant and security service workers and vendors (16.72%), accounting and administrative employees (9.92%), technicians and support professionals (8.20%), artisans and skilled workers in the manufacturing and construction industries (6.64%), housekeepers (4.59%), unemployed (4.34%), directors and managers (3.11%), machinery operators (3.03%), elementary occupations (e.g., domestic employees, cleaning services' employees, or fast food service employees) (2.79%), and skilled workers in the agricultural, livestock, forestry, and fishing sectors (0.25%). This distribution is consistent with the characteristics of the population in Bizkaia and reflects the socioeconomic conditions of the region (Basque Institute of Statistics 2024).

3.2 | Measures

A short version of the Functional Assessment of Self-Mutilation (FASM; Lloyd et al. 1997; Spanish version by Calvete et al. 2015) was used to assess engagement in NSSI behaviors during the last 3 months. The participants indicated whether and how often they had engaged in six representative methods of NSSI in the last 3 months (e.g., "Biting yourself, e.g., mouth or lip; burning your skin with a cigarette or other hot object"). Responses were given on a five-point scale ranging from 0 (*0 times*) to 4 (*> 11 times*). The score was calculated as the sum of the reported behaviors. Alpha coefficients ranged between 0.75 and 0.80.

Cyberbullying victimization was measured using the Cyberbullying Questionnaire (CBQ; Calvete et al. 2010), which has two sections, one on cyberbullying behaviors and another on cyberbullying victimization experiences. We used the subscale on victimization experiences. The nine items of this subscale include questions about cyberbullying victimization experiences, such as receiving threating messages or others posting or

sending one's pictures in the previous 3 months, with responses given on a scale ranging from 0 (*never*) to 3 (*5 or more times*). The mean total score was used. The CBQ has demonstrated adequate factor and convergent validity and good internal consistency (Gámez-Guadix et al. 2014). Alpha ordinal coefficients ranged between 0.82 and 0.96.

Depressive symptoms were measured using the Center for Epidemiologic Studies-Depression Scale Short-version (CES-D; Radloff 1977; Spanish short-version by Rueda-Jaimes et al. 2009). This short-version includes 10 items related to a lack of positive and negative affectivity in depressive symptomatology, with responses based on experiences in the last 3 months. The response scale ranges from 0 (*rarely*) to 3 (*most or almost all of the time*), and the mean total score was used for analysis. Alpha coefficients ranged between 0.89 and 0.91.

3.3 | Procedure

The study was approved by the Ethical Committee of the University of Deusto. Information about the study was sent to the parents of the students, who could then decide whether to allow their children to participate. Additionally, the adolescents read the information about the study and provided their consent to participate. The participants completed questionnaires in their classrooms through Qualtrics. To link the responses across the three waves of measurement, a code known only by the students was used, ensuring that their responses remained anonymous.

3.4 | Data Analysis

An exploration of the variables showed that all were normally distributed except the cyberbullying victimization measures, which showed high kurtosis values (5.79–11.98), as a high percentage of the sample did not report victimization experiences during the study period. Consequently, the victimization variables were transformed using the square root, which resulted in a normal distribution of the variables.

We conducted a Random Intercept Cross-Lagged Panel Model (RI-CLPM; Hamaker et al. 2015) to test the study hypotheses. Unlike traditional CLPMs, RI-CLPMs have the advantage of disentangling **between-person** effects from **within-person** effects. The random intercepts (RIs) capture each participant's average level on each variable (i.e., trait-like, between-person variation), while the within-person variables reflect **deviations** from those average levels over time. Autoregressive paths indicate the extent to which deviations from an individual's typical level on a variable at time $t-1$ carry over to influence deviations at time t. Similarly, cross-lagged paths indicate the extent to which deviations in one variable at time $t-1$ predict deviations in another variable at time t (Osborne and Little 2024).

In this study, we followed the modeling procedure proposed by Osborne and Little (2024), which differs in some respects from the approach outlined by Mulder and Hamaker (2021). Specifically, rather than constraining all RI factor loadings to 1, we freely estimated all factor loadings while constraining them to be equal across indicators. We also constrained the means and variances of the random intercepts to 0 and 1, respectively, placing all RIs on a common metric. Furthermore, we fixed the variances of the latent within-person variables to 1 and freely estimated their factor loadings, allowing the latent variable factor scores to be placed on a common metric at each time point. This approach facilitates valid comparisons of cross-lagged effects in the unstandardized solution (Osborne and Little 2024).

The model included autoregressive and cross-lagged paths from all within-person variables at time $t-1$ to their respective constructs at time t. The RI-CLPM was initially estimated as a **nonstationary** process (i.e., allowing autoregressive and cross-lagged paths to vary over time), and we subsequently tested whether the model could be considered **stationary**. A stationary model assumes that associations between $t-1$ and t measures are consistent across assessment points, which offers advantages for interpretation and model convergence (Orth et al. 2021).

We also compared the model across **boys and girls**, first estimating all parameters freely in each group and then testing a constrained model in which all longitudinal paths and associations between the RIs were held equal across groups.

All models were estimated with MPLUS 8.11 using maximum likelihood estimation. The comparative fit index (CFI), Tucker/Lewis fit index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) were used to evaluate the fit of the model. According to Little (2024), RMSEA values between 0.02 and 0.05 indicate a good fit, while values between 0.05 and 0.08 indicate acceptable fit. CFI and TLI values between 0.95 and 0.99 indicate a very good fit, and values between 0.90 and 0.95 indicate acceptable fit. Finally, SRMR values lower than 0.08 indicate that the model adequately fits the data (Kline 2016).

The number of participants in the three waves of the study was as follows: 838 adolescents in W1, 803 in W2, and 815 in W3. We used Little's missing completely at random (MCAR) test to evaluate missingness. As the results of this test were statistically significant (χ^2 (143) = 261, $p < 0.001$), the data were deemed not missing completely at random (MCAR). Adolescents who failed to complete any waves were significantly older than those who completed all waves ($M = 14.56$, SD = 1.60 vs. $M = 15.57$, SD = 1.51), $t = 5.35$, $p < 0.001$. Therefore, multiple imputation (MI) was used to address missing values, and age was included as an auxiliary variable in the analysis. MI is a widely recommended approach when the MCAR assumption is violated (Little et al. 2014) because it generates multiple plausible estimates for the missing values, accounting for the uncertainty in the imputation process.

4 | Results

Table 1 shows the correlation coefficients between the study variables as well as the main descriptive statistics. Correlations between the same variables at different times were moderate for

TABLE 1 | Correlation coefficients and descriptive statistics among the study variables.

	1	2	3	4	5	6	7	8	9	10
1. W1 cyberbullying victimization	1									
2. W2 cyberbullying victimization	0.48**	1								
3. W3 cyberbullying victimization	0.37**	0.54**	1							
4. W1 NSSI	0.24**	0.20**	0.19**	1						
5. W2 NSSI	0.19**	0.26**	0.25**	0.65**	1					
6. W3 NSSI	0.21*	0.24**	0.33**	0.56**	0.69**	1				
7. W1 depressive symptoms	0.32**	0.27**	0.24**	0.40**	0.38**	0.35**	1			
8. W2 depressive symptoms	0.26**	0.35**	0.34**	0.31**	0.45**	0.41**	0.70**	1		
9. W3 depressive symptoms	0.18**	0.30**	0.33**	0.26**	0.38**	0.47**	0.61**	0.75**	1	
10. Age	0.07*	0.08*	0.07*	−0.08*	−0.08**	−0.10**	0.067	0.04	−0.01	1
Mean	1.34	1.17	0.96	3.36	3.08	2.80	8.79	9.06	9.01	14.64
SD	2.21	2.11	2.76	4.22	4.26	4.13	6.28	6.71	6.59	1.62
Range	0–18	0–17	0–36	0–21	0–24	0–24	0–30	0–30	0–30	11.74–17.79

Note: $^{*}p < 0.01$; $^{**}p < 0.001$.
Abbreviations: NSSI = non-suicidal self-injury; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

TABLE 2 | Gender differences in the study variables.

	Girls Mean	SD	Boys Mean	SD	*t*	*p*	*d*
1. W1 cyberbullying victimization	0.65	0.91	0.55	0.81	−1.55	0.121	−0.11
2. W2 cyberbullying victimization	0.70	0.91	0.57	0.82	−2.08	0.038	−0.15
3. W3 cyberbullying victimization	0.51	0.81	0.44	0.77	−1.30	0.196	−0.09
4. W1 NSSI	3.46	4.47	3.25	3.97	−0.73	0.468	−0.05
5. W2 NSSI	3.38	4.40	2.80	4.10	−1.90	0.057	−0.14
6. W3 NSSI	3.35	4.50	2.28	3.67	−3.69	< 0.001	−0.26
7. W1 depressive symptoms	10.82	6.73	6.85	5.11	−9.59	< 0.001	−0.67
8. W2 depressive symptoms	11.20	7.33	6.98	5.27	−9.25	< 0.001	−0.66
9. W3 depressive symptoms	11.18	7.01	6.93	5.39	−9.63	< 0.001	−0.68

Note: Measures of cyberbullying were square-root transformed.
Abbreviations: NSSI = non-suicidal self-injury; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

victimization and high for depressive symptoms and NSSI. In general, correlations between victimization and both NSSI and depressive symptoms were low to moderate, while correlations between depressive symptoms and NSSI were moderate. Age was significantly associated with lower levels of NSSI and higher levels of victimization, but the effect sizes were very small. The percentages of adolescents who reported engaging in at least one NSSI behavior in the previous 3 months were 57.5%, 50.4%, and 47.7%, respectively, in W1, W2, and W3. Gender differences in the study variables are presented in Table 2. Girls scored significantly higher than boys on depressive symptoms over time (with medium effect sizes) and on cyberbullying victimization in W2 and NSSI in W3 (with small effect sizes).

Next, the predictive model was estimated. The RI-CLPM showed excellent model fit: $\chi^2(9) = 11.96$, RMSEA = 0.019 [0.00, 0.044], CFI = 0.999, TLI = 0.995, SRMR = 0.010. At the between-person level, the RI for NSSI was significantly and positively associated with the RIs for depressive symptoms and cyberbullying victimization. At the within-person level, all contemporaneous correlations between variables at each wave were statistically significant, indicating that adolescents' temporary deviations from their typical levels of NSSI, depressive symptoms, and cyberbullying victimization were related. These associations held after controlling for between-person levels and prior autoregressive and cross-lagged effects (Table 3).

All autoregressive paths were statistically significant, indicating that deviations above an individual's typical level in a given variable predicted deviations in the same variable at the subsequent wave. Cross-lagged paths revealed that deviations above typical levels of cyberbullying victimization consistently predicted subsequent deviations above typical levels of depressive symptoms. Similarly, deviations above one's typical level of depressive symptoms predicted higher-than-usual levels of cyberbullying victimization. Additionally, deviations in depressive symptoms predicted subsequent deviations in NSSI, although this cross-lagged path was not statistically significant between

TABLE 3 | Contemporaneous associations between within-person variables.

	B	SE	*t*	*p*	95% CI	
W1 NSSI with W1 cyberbullying victimization	0.12	0.07	1.74	0.083	−0.02	0.26
W1 NSSI with W1 depressive symptoms	0.30	0.08	3.86	< 0.001	0.15	0.45
W1 cyberbullying victimization with W1 depressive symptoms	0.35	0.07	4.68	< 0.001	0.20	0.49
W2 NSSI with W2 cyberbullying victimization	0.19	0.06	3.23	0.001	0.08	0.31
W2 NSSI with W2 depressive symptoms	0.39	0.05	7.32	< 0.001	0.29	0.50
W2 cyberbullying victimization with W2 depressive symptoms	0.29	0.05	5.87	< 0.001	0.20	0.39
W3 NSSI with W3 cyberbullying victimization	0.21	0.05	4.05	< 0.001	0.11	0.31
W3 NSSI with W3 depressive symptoms	0.31	0.05	6.62	< 0.001	0.22	0.41
W3 cyberbullying victimization with W3 depressive symptoms	0.16	0.05	3.44	0.001	0.07	0.26

Abbreviations: NSSI = non-suicidal self-injury; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

W1 and W2. Deviations in NSSI did not significantly predict later deviations in either depressive symptoms or cyberbullying victimization. Table 4 presents the longitudinal coefficients for the model. We interpreted the size of the standardized cross-lagged effects using Orth et al. (2024) guide (0.03 = small, 0.07 = medium, 0.12 = large effect), and all statistically significant cross-lagged associations were classified as large.

Next, we tested for stationarity by constraining the cross-lagged and autoregressive paths from W1 to W2 to be equal to their corresponding paths from W2 to W3. The stationary model also demonstrated excellent fit: $\chi^2(18) = 15.63$, RMSEA = 0.00 [0.00, 0.025], CFI = 1.00, TLI = 1.00, SRMR = 0.012. The chi-square difference between the unconstrained and stationary models was not statistically significant ($\Delta\chi^2(9) = 3.67$, $p = 0.932$), and CFI was increased slightly (ΔCFI = 0.001). Therefore, the stationary model was retained. Figure 1 displays the main coefficients from the stationary RI-CLPM at both the between- and within-person levels.

The results were consistent with a possible indirect effect of W1 cyberbullying victimization on W3 NSSI and cyberbullying victimization via W2 depressive symptoms. The indirect association between cyberbullying victimization and NSSI through depressive symptoms was statistically significant (0.029, SE = 0.013, $t = 2.17$, $p = 0.030$). The indirect association between W1 and W3 cyberbullying victimization mediated by W2 depressive symptoms was also statistically significant (0.042, SE = 0.018, $t = 2.28$, $p = 0.023$).

We then assessed whether the RI-CLPM was invariant across boys and girls, using the stationary model as the reference (see Lilly et al. 2024, for a similar procedure). We first estimated the model simultaneously for both subsamples, which showed adequate fit: $\chi^2(36, N = 909) = 31.85$, RMSEA = 0.000 [0.000, 0.028], CFI = 1.00, TLI = 1.00, SRMR = 0.021. Figure 2 shows the coefficients for both subsamples. Overall, the model patterns were very similar for boys and girls. However, the autoregressive paths for NSSI were not statistically significant among girls. Additionally, the cross-lagged path from depressive symptoms to NSSI was significant only in girls, while the cross-lagged path from depressive symptoms to cyberbullying victimization was only marginally significant among girls. At the between-person level, all associations among RIs were statistically significant in both subsamples, except for the association between cyberbullying victimization and depressive symptoms in girls. Table 5 presents all longitudinal coefficients for each subsample.

Subsequently, we estimated a model in which all within-person longitudinal paths and the three covariance coefficients among RI variables were constrained to be equal across the two subsamples. The model yielded the following fit indices: $\chi^2(48, N = 909) = 55.51$, RMSEA = 0.020 [0.000, 0.038], CFI = 0.997, TLI = 0.994, SRMR = 0.033. This represented a statistically significant increase in χ^2 ($\Delta\chi^2(12) = 24.66$, $p = 0.017$). However, the change in CFI (ΔCFI = 0.003) was below the threshold proposed by Cheung and Rensvold (2002; ΔCFI < 0.01, although it was slightly above the more conservative threshold (ΔCFI < 0.002) proposed by Meade et al. (2008).

Given these apparent group differences, we conducted pairwise comparisons of the relevant parameters to determine whether they differed significantly across genders. Two parameters showed statistically significant differences. First, the within-person path from deviations in depressive symptoms to deviations in cyberbullying victimization was significantly stronger in boys than in girls ($\Delta\chi^2(1) = 3.97$, $p = 0.046$); in fact, this path was only marginally significant among girls. Second, the covariance coefficient between RI NSSI and RI depressive symptoms was significantly higher in girls than in boys ($\Delta\chi^2(1) = 7.59$, $p = 0.006$).

5 | Discussion and Conclusion

NSSI is a significant issue during adolescence. While an extensive body of research has examined the role of factors such as depressive symptoms and peer victimization in the onset of NSSI, relatively few studies have addressed the transactional dynamics between these variables. Based on transactional and cascade models of psychopathology (Hankin et al. 2016; Masten and Cicchetti 2010; Masten et al. 2021), this study proposed that the predictive relationships between cyberbullying victimization, depressive symptoms, and NSSI would be bidirectional. A RI-CLPM procedure was used to separate between from within-person effects. However, overall, the findings provided limited support for the proposed hypotheses.

TABLE 4 | Longitudinal coefficients among within-person variables in the nonstationary model.

	B	SE	*β*	*t*	*p*	95% Confidence interval	
W2 NSSI							
W1 NSSI	0.31	0.09	0.29	3.93	< 0.001	0.15	0.43
W1 cyberbullying victimization	0.00	0.08	0.00	0.02	0.985	−0.14	0.14
W1 depressive symptoms	0.09	0.09	0.09	1.06	0.291	−0.08	0.25
W3 NSSI							
W2 NSSI	0.26	0.09	0.25	3.02	0.003	0.09	0.42
W2 cyberbullying victimization	0.07	0.07	0.07	1.00	0.318	−0.07	0.21
W2 depressive symptoms	0.19	0.07	0.20	2.60	0.009	0.05	0.35
W2 cyberbullying victimization							
W1 NSSI	−0.01	0.08	−0.01	−0.11	0.916	−0.15	0.13
W1 cyberbullying victimization	0.21	0.10	0.20	2.18	0.029	0.02	0.38
W1 depressive symptoms	0.25	0.10	0.23	2.57	0.010	0.06	0.41
W3 cyberbullying victimization							
W2 NSSI	0.03	0.08	0.03	0.37	0.710	−0.12	0.18
W2 cyberbullying victimization	0.16	0.07	0.16	2.22	0.026	0.02	0.31
W2 depressive symptoms	0.23	0.07	0.24	3.45	0.001	0.10	0.38
W2 depressive symptoms							
W1 NSSI	0.06	0.07	0.05	0.83	0.406	−0.07	0.17
W1 cyberbullying victimization	0.16	0.07	0.14	2.30	0.021	0.02	0.25
W1 depressive symptoms	0.46	0.12	0.40	4.92	< 0.001	0.24	0.56
W3 depressive symptoms							
W2 NSSI	0.02	0.06	0.02	0.31	0.757	−0.09	0.12
W2 cyberbullying victimization	0.15	0.06	0.13	2.35	0.019	0.02	0.23
W2 depressive symptoms	0.57	0.08	0.52	8.30	< 0.001	0.40	0.64

Abbreviations: NSSI = non-suicidal self-injury; W1 = Wave 1; W2 = Wave 2; W3 = Wave 3.

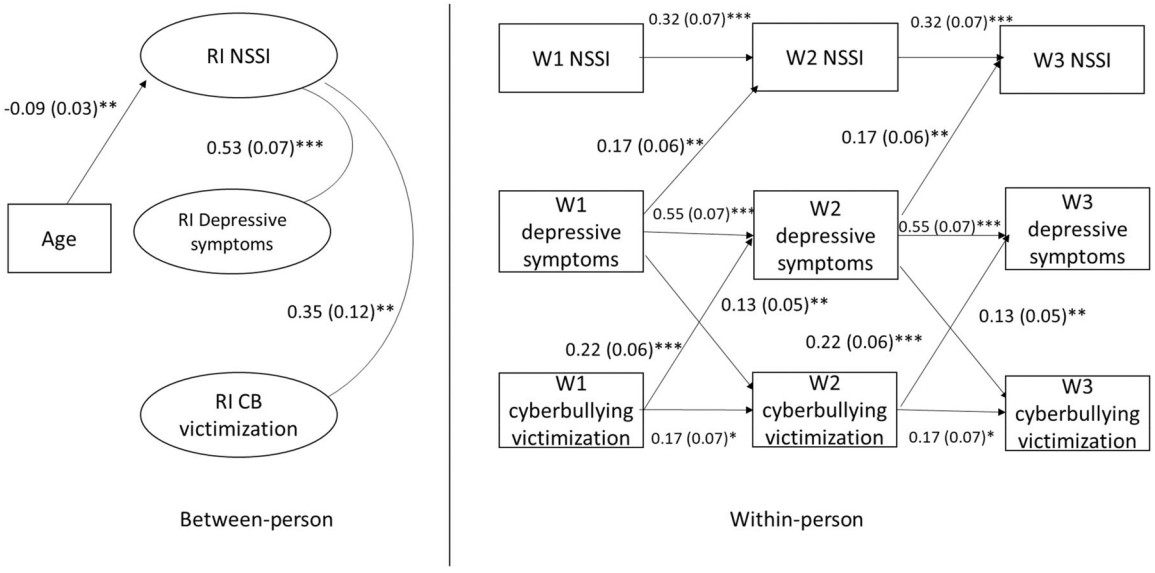

FIGURE 1 | Longitudinal paths across the study variables. *Note:* Only statistically significant unstandardized parameters are displayed. NSSI = Non-suicidal self-injury. W1 = Wave 1; W2 = Wave 2; W3 = Wave 3, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

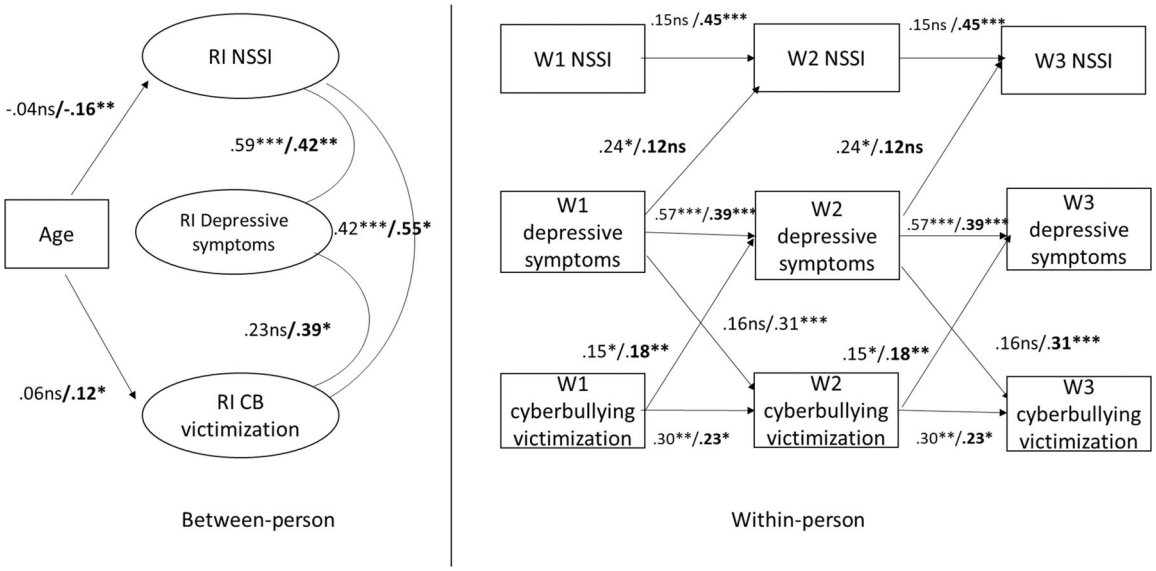

FIGURE 2 | Main parameters of the RI-CLPM model in girls and boys. Note. Standardized coefficients are displayed. Coefficients for boys are displayed in bolded type. NSSI = Non-suicidal self-injury. W1 = Wave 1; W2 = Wave 2; W3 = Wave 3. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

TABLE 5 | Stationary RI-CLPM in the subsamples of boys and girls.

	Girls							Boys						
Girls	***β***	***B***	**SE**	***t***	***p***	**95% CI**		***β***	***B***	**SE**	***t***	***p***	**95% CI**	
W2 NSSI														
W1 NSSI	0.14	0.15	0.12	1.24	0.214	−0.09	0.38	0.40	0.45	0.10	4.61	< 0.001	0.26	0.64
W1 cyberbullying victimization	0.04	0.04	0.08	0.52	0.604	−0.11	0.19	−0.02	−0.03	0.07	−0.36	0.717	−0.17	0.12
W1 depressive symptoms	0.22	0.24	0.10	2.42	0.015	0.05	0.43	0.10	0.12	0.09	1.31	0.190	−0.06	0.29
W3 NSSI														
W2 NSSI	0.14	0.15	0.12	1.24	0.214	−0.09	0.38	0.44	0.45	0.10	4.61	< 0.001	0.26	0.64
W2 cyberbullying victimization	0.04	0.04	0.08	0.52	0.604	−0.11	0.19	−0.03	−0.03	0.07	−0.36	0.717	−0.17	0.12
W2 depressive symptoms	0.27	0.24	0.10	2.42	0.015	0.05	0.43	0.11	0.12	0.09	1.31	0.190	−0.06	0.29
W2 cyberbullying victimization														
W1 NSSI	0.08	0.09	0.08	1.07	0.284	−0.07	0.25	−0.06	−0.07	0.07	−0.89	0.372	−0.21	0.08
W1 cyberbullying victimization	0.28	0.30	0.09	3.33	0.001	0.12	0.48	0.21	0.23	0.09	2.49	0.013	0.05	0.40
W1 depressive symptoms	0.15	0.16	0.08	1.95	0.051	0.00	0.32	0.28	0.31	0.08	3.76	< 0.001	0.15	0.47
W3 cyberbullying victimization														
W2 NSSI	0.08	0.09	0.08	1.07	0.284	−0.07	0.25	−0.07	−0.07	0.07	−0.89	0.372	−0.21	0.08
W2 cyberbullying victimization	0.29	0.30	0.09	3.33	0.001	0.12	0.48	0.22	0.23	0.09	2.49	0.013	0.05	0.40
W2 depressive symptoms	0.18	0.16	0.08	1.95	0.051	0.00	0.32	0.31	0.31	0.08	3.76	< 0.001	0.15	0.47
W2 depressive symptoms														
W1 NSSI	0.11	0.14	0.09	1.58	0.114	−0.03	0.31	0.03	0.03	0.07	0.45	0.653	−0.10	0.16
W1 cyberbullying victimization	0.12	0.15	0.07	2.15	0.032	0.01	0.29	0.16	0.18	0.07	2.60	0.009	0.04	0.31
W1 depressive symptoms	0.47	0.57	0.11	5.25	< 0.001	0.36	0.79	0.35	0.39	0.11	3.68	< 0.001	0.18	0.60
W3 depressive symptoms														
W2 NSSI	0.11	0.14	0.09	1.58	0.114	−0.03	0.31	0.03	0.03	0.07	0.45	0.653	−0.10	0.16
W2 cyberbullying victimization	0.12	0.15	0.07	2.15	0.032	0.01	0.29	0.17	0.18	0.07	2.60	0.009	0.04	0.31
W2 depressive symptoms	0.53	0.57	0.11	5.25	< 0.001	0.36	0.79	0.38	0.39	0.11	3.68	< 0.001	0.18	0.60

At the between-person level, results showed that average levels of NSSI covaried with average levels of depressive symptoms and cyberbullying victimization. That is, adolescents who reported higher average levels of self-injury also tended to exhibit higher levels of depressive symptoms and cyberbullying victimization. The effect size was large for the association between NSSI and depression and moderate for the association between NSSI and cyberbullying victimization. In contrast, average levels of depressive symptoms were not significantly associated with cyberbullying victimization in the overall sample. This lack of significance should be interpreted in light of the within-person findings described below.

The strongest evidence for bidirectional associations emerged between cyberbullying victimization and depressive symptoms. At the within-person level, deviations above adolescents' typical levels of victimization predicted subsequent deviations above their average levels of depressive symptoms, and vice versa. This suggests that associations between these variables occur primarily in response to fluctuations from typical individual levels, as the association between the RIs of these variables was not statistically significant. The predictive paths from cyberbullying victimization to depression are consistent with previous findings showing that traditional and online bullying victimization predicted increases in depressive symptoms among victims (Gámez-Guadix et al. 2013; Morea and Calvete 2022; Rose and Tynes 2015). Similarly, the predictive paths from depressive symptoms to cyberbullying victimization align with those reported in prior longitudinal studies (Gámez-Guadix et al. 2013; Morea and Calvete 2022; Rose and Tynes 2015) and are consistent with the stress generation model (Hammen 2005). Applying this model to the context of cybervictimization, it suggests that adolescents who show symptoms of depression—such as sadness and social withdrawal—may be perceived as less socially appealing and therefore become easier targets for cyberaggressors. Furthermore, our results indicate that these new instances of victimization may exacerbate depressive symptoms, trapping the adolescent in a negative cycle.

Additionally, deviations above typical levels of depressive symptoms predicted subsequent deviations in NSSI, supporting the notion that emotional distress is a precursor to self-injury (Klonsky 2011; Nock and Prinstein 2004). These results are consistent with a mediational pathway in which cyberbullying victimization and NSSI are indirectly linked via fluctuations in depressive symptoms. It is important to highlight that previous studies examining this mediation have primarily used cross-sectional (Faura-Garcia et al. 2021b; Liu et al. 2023) or two-wave designs (Li et al. 2023). Thus, our study provides longitudinal evidence for this association, using a procedure that accounts for trait-like (between-person) variance in the variables.

Several of our hypotheses were not supported. Deviations above typical levels of cyberbullying victimization did not predict subsequent deviations in NSSI, a finding that differs from those reported in some earlier studies (Li et al. 2024; Wang et al. 2024). Cultural differences in emotion regulation strategies may help explain these discrepancies. In Asian cultures, there is a greater reliance on emotional suppression and avoidance compared to Western cultures (Song et al. 2024), and such strategies may be less adaptive for preventing self-injurious behaviors. Additionally, deviations in NSSI did not predict changes in depressive symptoms or cyberbullying victimization. Therefore, although the between-person results showed that average NSSI levels were significantly associated with both depressive symptoms and cyberbullying victimization, the within-person analyses did not support directional predictions. These findings contribute to the mixed evidence in the limited body of research examining bidirectional links between NSSI and victimization (Bilgin et al. 2022; De Luca et al. 2022; Wang et al. 2024). However, it should be noted that previous studies exploring this relationship focused primarily on face-to-face peer victimization rather than cyberbullying (Bilgin et al. 2022; De Luca et al. 2022; Wang et al. 2024). It is possible that traditional peer victimization exerts a more direct impact on self-injurious behavior. Adolescents who engage in NSSI may also be more exposed to offline peer victimization due to factors such as social rejection or interpersonal difficulties.

The findings also contrast with previous studies reporting that NSSI predicts increases in psychological distress (Buelens et al. 2019; Faura-Garcia et al. 2024; Hu et al. 2024). Several methodological differences may account for this discrepancy. For instance, Buelens et al. (2019) assessed psychological distress as a broader construct, including anxiety in addition to depression. Moreover, the study by Hu et al. (2024) was conducted during the COVID-19 pandemic, a context that may have influenced the nature and strength of the relationships observed. Notably, in that study, the path from NSSI to depression was very small (0.02), whereas the reverse path—from depression to NSSI—was considerably larger (0.26).

Sociocultural factors in Spain may also have influenced the observed relationships. According to the National Institute of Statistics, 86.4% of adolescents aged 12 to 15 are regular internet users, and 97% own a mobile phone (Instituto Nacional de Estadística 2021). Easy access to the internet may increase exposure to cyberbullying and reinforce the bidirectional cycle between victimization and depressive symptoms. Additionally, the stigma surrounding mental health issues and the limited availability of specialized resources and professionals in Spain may delay access to psychological care (Martínez 2023). Such delays could strengthen the cyclical relationship between depression and cybervictimization.

This study also explored whether the associations among NSSI, depressive symptoms, and cyberbullying victimization differed between boys and girls. Overall, the model was highly similar across groups, but two notable differences emerged. First, at the between-person level, the association between depressive symptoms and NSSI was stronger in girls than in boys. This may be partially explained by the higher levels of both variables observed in girls, a pattern also found in prior research (Farkas et al. 2023; Salk et al. 2017; Xiao et al. 2022), and also by the more frequent use of NSSI by girls as emotion regulation strategy to deal with depressive symptoms (Gao et al. 2020). Second, the predictive association from deviations in depressive symptoms to deviations in cyberbullying victimization was stronger in boys. In fact, this association was only marginally significant in girls. Although this contradicts studies reporting no gender differences in this association (Forbes et al. 2019; He

et al. 2022), it aligns with the findings of Wang et al. (2024), and may suggest that boys with depressive symptoms are perceived as "weaker" or less "masculine," making them more vulnerable to targeting by aggressors.

5.1 | Limitations and Strengths

This study has several limitations that offer opportunities for improvement in future research. First, all measures relied on self-report instruments. Although anonymity was preserved to encourage honest responses, social desirability and self-perception biases may not have been fully eliminated. Second, some of the instruments used were abbreviated versions (e.g., those assessing NSSI and depressive symptoms), potentially reducing measurement validity. Third, unlike prior studies, the time interval between waves in this study was relatively short (3 months). Although intended as a strength, this brief interval may have resulted in insufficient variability over time, weakening predictive associations. Since most prior studies used 1-year intervals, future research would benefit from exploring associations over varying time frames. Fourth, missing data were not completely at random. However, we used multiple imputation, a recommended method for addressing such issues (Little et al. 2014). Because age was associated with missingness, it was included in all models. Finally, this study was conducted with a community sample of adolescents. Given that NSSI is more prevalent in clinical samples, it is important for future research to examine whether these associations replicate in clinical populations (Bentley et al. 2015).

Despite these limitations, the study also has notable strengths. These include the use of a large, socioeconomically diverse adolescent sample and the application of a RI-CLPM, which allows for a clear distinction between within- and between-person effects. This approach enabled us to examine predictive associations between temporary deviations in the study variables, offering greater precision. Lastly, testing the model separately for boys and girls contributed to understanding potential gender differences in the mechanisms underlying NSSI.

5.2 | Conclusion

Despite the mixed results regarding the proposed hypotheses, this study contributes to the literature by providing data on longitudinal associations between NSSI, victimization, and depressive symptoms while controlling for trait-level variance in the study variables. The results highlight the complexity of the relationships among cyberbullying victimization, depressive symptoms, and NSSI, underscoring the importance of further research into their longitudinal and bidirectional nature. A better understanding of these dynamics is essential for the development of effective prevention and intervention strategies targeting adolescent mental health. For example, interventions should help adolescents understand how depressive symptoms may contribute to new experiences of victimization, potentially trapping them in a vicious cycle. Such knowledge could be useful in interrupting the pattern. NSSI interventions should also include the development of emotional regulation skills and strategies for managing experiences of victimization. Given the substantial impact of cyberbullying, it is crucial to implement more effective protocols for its prevention, detection, and intervention. These efforts should actively involve students, the school community, and families, with a gender-informed perspective that accounts for socialization differences in emotional responses and stress coping. Future research should continue to explore the mechanisms and moderators that shape these associations over time, particularly in clinical samples of adolescents where NSSI prevalence is higher.

Author Contributions

Esther Calvete conceived of the study, participated in its design, performed the analyses and prepared the initial draft of introduction and discussion; Amaya Ayala, Aitor Jiménez-Granado, and Izaskun Orue participated in the review of the literature and wrote subsections of the manuscript. All authors read and approved the final manuscript.

Acknowledgments

This study was supported by a grant from Basque Country (Ref. IT1532-22) and from the Spanish Government (PROEMO—RED2022-134247-T).

Ethics Statement

Participation was voluntary and participants were informed that their responses were confidential and would only be read by the research team. The procedure always followed the standards of the Declaration of Helsinki. The Ethics Committee of University of Deusto approved this study (ETK-27/18-19).

Consent

Active informed consent was required to participate in the study.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data are available upon reasonable request from the authors.

References

Averdijk, M., T. Malti, M. Eisner, D. Ribeaud, and D. P. Farrington. 2016. "A Vicious Cycle of Peer Victimization? Problem Behavior Mediates Stability in Peer Victimization Over Time." *Journal of Developmental and Life-Course Criminology* 2, no. 2: 162–181. https://doi.org/10.1007/s40865-016-0024-7.

Barlett, C. P., R. M. Kowalski, and A. M. Wilson. 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: e101886. https://doi.org/10.1016/j.avb.2023.101886.

Basque Institute of Statistics. 2024. Employed Population Aged 16 and Over of the Basque Country by Provinces According to Economic Sector and Sex. https://en.eustat.eus/elementos/ele0013700/ti_poblacion-de-16-y-mas-anos-ocupada-de-la-ca-de-euskadi-por-ambitos-territoriales-segun-sectores-economicos-y-sexo-01012023/tbl0013788_i.html.

Bentley, K. H., C. F. Cassiello-Robbins, L. Vittorio, S. Sauer-Zavala, and D. H. Barlow. 2015. "The Association Between Nonsuicidal Self-Injury and the Emotional Disorders: A Meta-Analytic Review." *Clinical Psychology Review* 37: 72–88. https://doi.org/10.1016/j.cpr.2015.02.006.

Bilgin, A., R. Bondü, and B. Elsner. 2022. "Longitudinal Associations Between Justice Sensitivity, Nonsuicidal Self-Injury, Substance Use, and Victimization by Peers." *Development and Psychopathology* 34, no. 4: 1560–1572. https://doi.org/10.1017/S0954579421000250.

Buelens, T., K. Luyckx, A. Gandhi, G. Kiekens, and L. Claes. 2019. "Non-Suicidal Self-Injury in Adolescence: Longitudinal Associations With Psychological Distress and Rumination." *Journal of Abnormal Child Psychology* 47, no. 9: 1569–1581. https://doi.org/10.1007/s10802-019-00531-8.

Burke, T. A., J. L. Hamilton, L. Y. Abramson, and L. B. Alloy. 2015. "Non-Suicidal Self-Injury Prospectively Predicts Interpersonal Stressful Life Events and Depressive Symptoms Among Adolescent Girls." *Psychiatry Research* 228, no. 3: 416–424. https://doi.org/10.1016/j.psychres.2015.06.021.

Calvete, E., I. Orue, L. Aizpuru, and H. Brotherton. 2015. "Prevalence and Functions of Non-Suicidal Self-Injury in Spanish Adolescents." *Psicothema* 3, no. 27: 223–228. https://doi.org/10.7334/psicothema2014.262.

Calvete, E., I. Orue, A. Echezarraga, N. Cortazar, and L. Fernández-González. 2022. "A Growth Mindset Intervention to Promote Resilience Against Online Peer Victimization: A Randomized Controlled Trial." *Computers in Human Behavior* 135: 107373. https://doi.org/10.1016/j.chb.2022.107373.

Calvete, E., I. Orue, A. Estévez, L. Villardón, and P. Padilla. 2010. "Cyberbullying in Adolescents: Modalities and Aggressors' Profile." *Computers in Human Behavior* 26, no. 5: 1128–1135. https://doi.org/10.1016/j.chb.2010.03.017.

Calvete, E., A. Prieto-Fildalgo, J. Faura-García, and I. Orue. 2024. "The Role of Testosterone and Cortisol Levels in Nonsuicidal Selfinjury in Adolescents." *Journal of Adolescence* 96: 1793–1804. https://doi.org/10.1002/jad.12380.

Chapman, A. L., K. L. Gratz, and M. Z. Brown. 2006. "Solving the Puzzle of Deliberate Self-Harm: The Experiential Avoidance Model." *Behaviour Research and Therapy* 44: 371–394. https://doi.org/10.1016/j.brat.2005.03.005.

Cheung, G. W., and R. B. Rensvold. 2002. "Evaluating Goodness-of-Fit Indexes for Testing Measurement Invariance." *Structural Equation Modeling: A Multidisciplinary Journal* 9, no. 2: 233–255. https://doi.org/10.1207/S15328007SEM0902_5.

Daly, M. 2022. "Prevalence of Depression Among Adolescents in the U.S. From 2009 to 2019: Analysis of Trends by Sex, Race/Ethnicity, and Income." *Journal of Adolescent Health* 70, no. 3: 496–499. https://doi.org/10.1016/j.jadohealth.2021.08.026.

Daly, O., and T. Willoughby. 2019. "A Longitudinal Study Investigating Bidirectionality Among Nonsuicidal Self-Injury, Self-Criticism, and Parental Criticism." *Psychiatry Research* 271: 678–683. https://doi.org/10.1016/j.psychres.2018.12.056.

Farkas, B. F., Z. K. Takacs, N. Kollárovics, and J. Balázs. 2023. "The Prevalence of Self-Injury in Adolescence: A Systematic Review and Meta-Analysis." *European Child & Adolescent Psychiatry* 33: 3439–3458. https://doi.org/10.1007/s00787-023-02264-y.

Faura-Garcia, J., E. Calvete, and I. Orue. 2024. "Longitudinal Associations Between Nonsuicidal Self-Injury, Depressive Symptoms, Hopelessness, and Emotional Dysregulation in Adolescents." *Archives of Suicide Research* 28, no. 3: 800–814. https://doi.org/10.1080/13811118.2023.2237075.

Faura-Garcia, J., I. Orue, and E. Calvete. 2021a. "Clinical Assessment of Non-Suicidal Self-Injury: A Systematic Review of Instruments." *Clinical Psychology & Psychotherapy* 28, no. 4: 739–765. https://doi.org/10.1002/cpp.2537.

Faura-Garcia, J., I. Orue, and E. Calvete. 2021b. "Cyberbullying Victimization and Nonsuicidal Self-Injury in Adolescents: The Role of Maladaptive Schemas and Dispositional Mindfulness." *Child Abuse and Neglect* 118: e105135. https://doi.org/10.1016/j.chiabu.2021.105135.

Forbes, M. K., S. Fitzpatrick, N. R. Magson, and R. M. Rapee. 2019. "Depression, Anxiety, and Peer Victimization: Bidirectional Relationships and Associated Outcomes Transitioning From Childhood to Adolescence." *Journal of Youth and Adolescence* 48, no. 4: 692–702. https://doi.org/10.1007/s10964-018-0922-6.

Gámez-Guadix, M., I. Orue, P. K. Smith, and E. Calvete. 2013. "Longitudinal and Reciprocal Relations of Cyberbullying With Depression, Substance Use, and Problematic Internet Use Among Adolescents." *Journal of Adolescent Health* 53: 446–452. https://doi.org/10.1016/j.jadohealth.2013.03.030.

Gámez-Guadix, M., F. Villa-George, and E. Calvete. 2014. "Psychometric Properties of the Cyberbullying Questionnaire (CBQ) Among Mexican Adolescents." *Violence and Victims* 29, no. 2: 232–247. https://doi.org/10.1891/0886-6708.VV-D-12-00163R1.

Gao, Y., H. Wang, X. Liu, Y. Xiong, and M. Wei. 2020. "Associations Between Stressful Life Events, Non-Suicidal Self-Injury, and Depressive Symptoms Among Chinese Rural-to-Urban Children: A Three-Wave Longitudinal Study." *Stress and Health* 36, no. 4: 522–532. https://doi.org/10.1002/smi.2954.

Guo, S. 2016. "A Meta-Analysis of the Predictors of Cyberbullying Perpetration and Victimization." *Psychology in the Schools* 53, no. 4: 432–453. https://doi.org/10.1002/pits.21914.

Hamaker, E. L., R. M. Kuiper, and R. P. P. P. Grasman. 2015. "A Critique of the Cross-Lagged Panel Model." *Psychological Methods* 20, no. 1: 102–116. https://doi.org/10.1037/a0038889.

Hammen, C. 2005. "Stress and Depression." *Annual Review of Clinical Psychology* 1: 293–319. https://doi.org/10.1146/annurev.clinpsy.1.102803.143938.

Hankin, B. L., H. R. Snyder, L. D. Gulley, et al. 2016. "Understanding Comorbidity Among Internalizing Problems: Integrating Latent Structural Models of Psychopathology and Risk Mechanisms." *Development and Psychopathology* 28: 987–1012. https://doi.org/10.1017/S0954579416000663.

Hasking, P., J. Whitlock, D. Voon, and A. Rose. 2017. "A Cognitive-Emotional Model of NSSI: Using Emotion Regulation and Cognitive Processes to Explain Why People Self-Injure." *Cognition and Emotion* 31, no. 8: 1543–1556. https://doi.org/10.1080/02699931.2016.1241219.

He, Y., S. S. Chen, G. D. Xie, et al. 2022. "Bidirectional Associations Among School Bullying, Depressive Symptoms and Sleep Problems in Adolescents: A Cross-Lagged Longitudinal Approach." *Journal of Affective Disorders* 298: 590–598. https://doi.org/10.1016/j.jad.2021.11.038.

Hu, R., L. L. Peng, Y. Du, et al. 2024. "Reciprocal Effect Between Non-Suicidal Self-Injury and Depressive Symptoms in Adolescence." *Frontiers in Public Health* 11: 1243885. https://doi.org/10.3389/fpubh.2023.1243885.

Hu, Y., Y. Bai, Y. Pan, and S. Li. 2021. "Cyberbullying Victimization and Depression Among Adolescents: A Meta-Analysis." *Psychiatry Research* 305: 114198. https://doi.org/10.1016/j.psychres.2021.114198.

Huang, H., Y. Ding, X. Wan, et al. 2022. "A Meta-Analysis of the Relationship Between Bullying and Non-Suicidal Self-Injury Among Children and Adolescents." *Scientific Reports* 12, no. 1: 17285. https://doi.org/10.1038/s41598-022-22122-2.

Instituto Nacional de Estadística. 2011. *Clasificación Nacional de Ocupaciones. CNO-11*. https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736177033&menu=ultiDatos&idp=1254735976614.

Instituto Nacional de Estadística. 2021. *Encuesta sobre equipamiento y uso de tecnologías de información y comunicación en los hogares*. Instituto Nacional de Estadística. https://www.ine.es/dynt3/inebase/es/index.htm?padre=6898.

Kline, R. B. 2016. *Principles and Practice of Structural Equation Modeling* (*4th ed.*). Guilford Press.

Klonsky, E. D. 2009. "The Functions of Self-Injury in Young Adults Who Cut Themselves: Clarifying the Evidence for Affect-Regulation." *Psychiatry Research* 166: 260–268. https://doi.org/10.1016/j.psychres.2008.02.008.

Klonsky, E. D. 2011. "Non-Suicidal Self-Injury in United States Adults: Prevalence, Sociodemographics, Topography and Functions." *Psychological Medicine* 41: 1981–1986. https://doi.org/10.1017/s0033291710002497.

Li, Y., S. Lin, Y. Han, et al. 2023. "Cybervictimization and Nonsuicidal Self-Injury: The Mediating Role of Depressive Symptoms and the Moderating Role of Emotional Reactivity." *Journal of Adolescence* 95, no. 6: 1106–1115. https://doi.org/10.1002/jad.12178.

Lilly, K. J., C. G. Sibley, and D. Osborne. 2024. "Examining the Indirect Effect of Income on Well-Being via Individual-Based Relative Deprivation: Longitudinal Mediation With a Random Intercept Cross-Lagged Panel Model." *International Journal of Psychology* 59, no. 3: 368–377. https://doi.org/10.1002/ijop.13097.

Little, T. D. 2024. *Longitudinal Structural Equation Modeling* (2nd ed). Guildford Press.

Little, T. D., T. D. Jorgensen, K. M. Lang, and E. W. G. Moore. 2014. "On the Joys of Missing Data." *Journal of Pediatric Psychology* 39: 151–162. https://doi.org/10.1093/jpepsy/jst048.

Liu, S., W. Wu, H. Zou, et al. 2023. "Cybervictimization and Non-Suicidal Self-Injury Among Chinese Adolescents: The Effect of Depression and School Connectedness." *Frontiers in Public Health* 11, Artículo: e1091959. https://doi.org/10.3389/fpubh.2023.1091959.

Lloyd, E. E., M. L. Kelley, and T. Hope. 1997. "Self-Mutilation in a Community Sample of Adolescents: Descriptive Characteristics and Provisional Prevalence Rates." In *Annual Meeting of the Society for Behavioral Medicine, New Orleans, LA*.

De Luca, L., M. Giletta, E. Menesini, and M. J. Prinstein. 2022. "Reciprocal Associations Between Peer Problems and Non-Suicidal Self-Injury Throughout Adolescence." *Journal of Child Psychology and Psychiatry* 63, no. 12: 1486–1495. https://doi.org/10.1111/jcpp.13601.

Lundh, L.-G., M. Wångby-Lundh, M. Paaske, S. Ingesson, and J. Bjärehed. 2011. "Depressive Symptoms and Deliberate Self-Harm in a Community Sample of Adolescents: A Prospective Study." *Depression Research and Treatment, 2011* 1: e935871. https://doi.org/10.1155/2011/935871.

Marshall, S. K., L. C. Tilton-Weaver, and H. Stattin. 2013. "Non-Suicidal Self-Injury and Depressive Symptoms During Middle Adolescence: A Longitudinal Analysis." *Journal of Youth and Adolescence* 42, no. 8: 1234–1242. https://doi.org/10.1007/s10964-013-9919-3.

Martínez, I. F. 2023. "Psicología de la salud con niños y adolescentes: Importante Continuar Avanzando." *Revista de Psicología de la Salud* 11, no. 1: 1–5. https://doi.org/10.21134/pssa.v11i1.311.

Masten, A. S., and D. Cicchetti. 2010. "Developmental Cascades." *Development and Psychopathology* 22: 491–495. https://doi.org/10.1017/s0954579410000222.

Masten, A. S., C. M. Lucke, K. M. Nelson, and I. C. Stallworthy. 2021. "Resilience in Development and Psychopathology: Multisystem Perspectives." *Annual Review of Clinical Psychology* 17: 521–549. https://doi.org/10.1146/annurev-clinpsy-081219-120307.

Meade, A. W., E. C. Johnson, and P. W. Braddy. 2008. "Power and Sensitivity of Alternative Fit Indices in Tests of Measurement Invariance." *Journal of Applied Psychology* 93: 568–592. https://doi.org/10.1037/0021-9010.93.3.568.

Morea, A., and E. Calvete. 2022. "Understanding the Perpetuation of Cyberbullying Victimization in Adolescents: The Role of Executive Functions." *Research on Child and Adolescent Psychopathology* 50, no. 10: 1299–1311. https://doi.org/10.1007/s10802-022-00926-0.

Mulder, J. D., and E. L. Hamaker. 2021. "Three Extensions of the Random Intercept Cross-Lagged Panel Model." *Structural Equation Modeling: A Multidisciplinary Journal* 28, no. 4: 638–648. https://doi.org/10.1080/10705511.2020.1784738.

Nock, M. K., and A. R. Favazza. 2009. "Nonsuicidal Self-Injury: Definition and Classification." *Understanding Nonsuicidal Self-injury: Origins, Assessment, and Treatment* 33, no. 2: 9–18. https://doi.org/10.1037/11875-001.

Nock, M. K., and M. J. Prinstein. 2004. "A Functional Approach to the Assessment of Self-Mutilative Behavior." *Journal of Consulting and Clinical Psychology* 72, no. 5: 885–890. https://doi.org/10.1037/0022-006x.72.5.885.

Orth, U., D. A. Clark, M. B. Donnellan, and R. W. Robins. 2021. "Testing Prospective Effects in Longitudinal Research: Comparing Seven Competing Cross-Lagged Models." *Journal of Personality and Social Psychology* 120, no. 4: 1013–1034. https://doi.org/10.1037/pspp0000358.

Orth, U., L. L. Meier, J. L. Bühler, et al. 2024. "Effect Size Guidelines for Cross-Lagged Effects." *Psychological Methods* 29, no. 2: 421–433. https://doi.org/10.1037/met0000499.

Osborne, D., and T. D. Little. 2024. "The Random Intercepts Cross-Lagged Panel Model." In *Longitudinal Structural Equation Modeling*, edited by T. D. Little, (2nd ed., 286–337. The Guilford Press.

Radloff, L. S. 1977. "The CES-D Scale: A Self-Report Depression Scale for Research in the General Population." *Applied Psychological Measurement* 1, no. 3: 385–401. https://doi.org/10.1177/014662167700100306.

Rose, C. A., and B. M. Tynes. 2015. "Longitudinal Associations Between Cybervictimization and Mental Health Among U.S. Adolescents." *Journal of Adolescent Health* 57, no. 3: 305–312. https://doi.org/10.1016/j.jadohealth.2015.05.002.

Rueda-Jaimes, G. E., P. A. Camacho López, and A. M. Rangel-Martínez-Villalba. 2009. "Validación de dos versiones cortas de la escala para depresión del Centro de Estudios Epidemiológicos en adolescentes colombianos." *Atención Primaria* 41, no. 5: 255–261. https://doi.org/10.1016/j.aprim.2008.09.005.

Salk, R. H., J. S. Hyde, and L. Y. Abramson. 2017. "Gender Differences in Depression in Representative National Samples: Meta-Analyses of Diagnoses and Symptoms." *Psychological Bulletin* 143, no. 8: 783–822. https://doi.org/10.1037/bul0000102.

Song, H., J. S. Chan, and C. Ryan. 2024. "Differences and Similarities in the Use of Nine Emotion Regulation Strategies in Western and East-Asian Cultures: Systematic Review and Meta-Analysis." *Journal of Cross-Cultural Psychology* 55, no. 8: 865–885. https://doi.org/10.1177/002202212412850.

Taylor, P. J., K. Jomar, K. Dhingra, R. Forrester, U. Shahmalak, and J. M. Dickson. 2018. "A Meta-Analysis of the Prevalence of Different Functions of Non-Suicidal Self-Injury." *Journal of Affective Disorders* 227: 759–769. https://doi.org/10.1016/j.jad.2017.11.073.

Wang, S., W. Ding, S. Song, et al. 2024. "The Relationship Between Adolescent Victimization, Nonsuicidal Self-Injury, and Core Self-Evaluation: A Cross-Lagged Study." *Current Psychology* 43, no. 1: 28–38. https://doi.org/10.1007/s12144-023-05299-1.

Wang, X., H. Wang, and W. Wang. 2024. "Longitudinal Associations Among Bullying Victimization, Self-Esteem, and Adolescents' Depressive Symptoms." *Psychology of Violence* 14, no. 1: 56–65. https://doi.org/10.1037/vio0000490.

Xiao, Q., X. Song, L. Huang, D. Hou, and X. Huang. 2022. "Global Prevalence and Characteristics of Non-Suicidal Self-Injury Between 2010 and 2021 Among a Non-Clinical Sample of Adolescents: A Meta-Analysis." *Frontiers in Psychiatry* 13: 1–16. https://doi.org/10.3389/fpsyt.2022.912441.