Spanish Validation of the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA): Introducing the ERQ-SpA

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Research on emotion regulation is now extensive and shows the benefits of the adaptive management of emotions for social functioning and psychological well-being. Our purpose was to test the psychometric properties of the Emotion Regulation Questionnaire for Children and Adolescents with a sample of nonclinical Spanish adolescents. A total of 462 secondary education students (223 girls, mean age = 13.89 years, SD = 1.38) participated. The instrument proved to be two-factor and gender-invariant. Results revealed the temporal stability of both emotion regulation strategies, while the predictive validity study revealed that depressive symptoms were negatively related to cognitive reappraisal, and positively related to expressive suppression. Our findings support the use of the ERQ-SpA in Spanish adolescents.

According to Thompson (1994), emotion regulation (ER) refers to the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying some or all the components of the emotional experience to accomplish one's goals. Research on ER is now extensive, including considerable evidence of the benefits of the adaptive management of emotions for social functioning and psychological well-being (for a review, see Chambers, Gullone, & Allen, 2009), and a number of theoretical models try to account for such benefits.

The process model of ER (Gross, 1998) states that an emotion unfolds over time in a sequence of steps. Broadly speaking, this model distinguishes between antecedent-focused and response-focused ER strategies, depending on whether they occur before or after the emotion is fully activated. The most representative antecedent-focused strategy is cognitive reappraisal (CR), which is regarded as a form of cognitive change that allows reducing the emotional impact of a potentially emotion-eliciting situation (Lazarus & Alfert, 1964; cited in Gross & John, 2003). However, if the antecedent-focused ER strategies are not properly implemented and the emotion is fully activated, the person can still inhibit ongoing emotion-expressive behavior. This is called expressive suppression (SU), the most

representative response-focused strategy within this model.

Emotion regulation as defined by Gross (1998) is assessed with the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ includes 10 items for the assessment of CR and SU. In the initial validation, a series of five studies was conducted with a total of 1,628 undergraduate students (M_{age} = 19.6 years; 63.4% female). The ERQ proved to have high internal consistency (α = .79 for CR; α = .73 for SU), and high test–retest reliability (r = .69). The analyses conducted also revealed the convergent and discriminant validity of the ERQ. Lastly, CR showed positive relations with life satisfaction, optimism, and well-being, whereas SU showed positive relations with depression.

The ERQ has been adapted to children and adolescents aged 10–18 years (Emotion Regulation Questionnaire for Children and Adolescents [ERQ-CA], Gullone & Taffe, 2012). The initial cross-validation study was conducted with a healthy sample of 827 youngsters (age: M = 13.93, SD = 2.46). Results revealed that the ERQ-CA presents good internal consistency and stability over time, invariant construct validity across age groups and gender, and adequate convergent validity: the two scales of the ERQ-CA correlated with self-reported depressive symptomatology and personality factors in the expected directions. Whereas the use of CR was not different between boys and girls, boys scored significantly higher than girls on SU. The ERQ-CA has been validated with Chinese children (N = 1381; age range: 7–12 years; Liu, Chen, & Tu, 2017) and Portuguese adolescents (N = 809; age

range: 12–19 years; Teixeira, Silva, Tavares, & Freire, 2015), replicating the two-factor structure, and the intergroup invariance for age, gender, and other demographic variables. More importantly, results showed positive relations between CR and measures of psychological functioning such as lower neuroticism, fewer depressive symptoms, and higher levels of self-esteem and well-being (Teixeira et al.), with expressive SU showing the same relations in the opposite direction (see also Liu et al. [2017] for further evidence of the relation between expressive SU and depressive symptoms). These findings are in line with the evidence that emotion dysregulation is a contributor to the onset of a myriad of negative outcomes such as depression, anxiety, bipolar disorder, externalizing disorders, and eating disorders during adolescence (Gilbert, 2012).

Despite this evidence, research on ER during adolescence is scarce due, in part, to the lack of validated instruments. In Spain, for instance, the three most prevalent problems during adolescence are externalizing problems, depression, and anxiety (Aláez, Martínez-Arias, & Rodríguez, 2000). However, there is no instrument assessing ER that could be used for screening and prevention purposes. The aim of this study was to assess the psychometric properties of the ERQ-CA with Spanish adolescents, employing a longitudinal design with measures at two times to conduct an expanded test of its factor structure, reliability, and predictive validity.

METHOD

Participants

We employed randomized double-step cluster sampling to select participants. The first unit (cluster) was the school and the second unit was the classroom. The sampling frame included all the public schools in the target region. Each school on the list was assigned a weight equivalent to the number of classrooms. All the principals of the selected schools agreed to participate in the study. A total of 21 classrooms were selected, 12 in urban and nine in suburban areas. The parents/tutors of the eligible students signed a written consent for their children to participate in the study. Inclusion criteria were (1) not presenting developmental disabilities incompatible with the requirements of the survey administration; and (2) fluent Spanish reading and understanding. A total of 462 students (239 boys and 223 girls) from four compulsory secondary education courses volunteered to participate. The age range was 11–17 years old ($M = 13.89$, $SD = 1.38$). Most of the participants were born in Spain (96%). Four weeks later, 94.37% of these participants ($N = 436$: 226 boys and 210 girls) completed the survey again. At least one researcher was present during the administration of the surveys to provide students with the necessary support to successfully complete the instruments.

Instruments

Emotion Regulation Questionnaire for Spanish Adolescents. We employed a Spanish adaptation of the ERQ-CA (Gullone & Taffe, 2012). As with the original instrument, our version contained 10 items for the assessment of CR (items 1, 3, 5, 7, 8, and 10; e.g., "When I want to feel happier, I think about something different") and SU (items 2, 4, 6, and 9; e.g., "When I am feeling happy, I am careful not to show it"). Items are rated on a 7-point Likert-type response scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores on each scale indicating greater use of the corresponding ER strategy. We translated the instrument into Spanish with the parallel back-translation procedure (Brislin, 1986), and three experts and five students evaluated the adequacy of the items to the construct being assessed. The final version included 10 items, like the original instrument. In the original validation study, the alpha reliability coefficients were .82 for CR and .69 for SU.

Scale of Depressive Symptomatology. We used the reduced version of the Scale of Depressive Symptomatology (Crockett, Randall, Shen, Russell, & Driscoll, 2005), adapted to Spanish by Herrero and Meneses (2006). It contains seven items for the assessment of depressed mood (e.g., "I felt that I could not shake off the blues even with the help from my family or friends"). Respondents rate how often they feel as described in each item, on a 4-point scale ranging from 1 (*rarely—less than once per week*) to 4 (*most of the time—7 days a week*), with high total scores corresponding to a major depressive state. In the Spanish validation study, alpha reliability was .83.

RESULTS

We used the statistical package SPSS for Windows, version 21 (IBM Corp., Armonk, NY) to conduct the descriptive analyses, the analysis of the Cronbach's alpha, and a multivariate analysis of variance (MANOVA) to test for gender and age differences; and Mplus version 6.0 (Muthén & Muthén, 1998–2010) to determine the factorial

structure of the scale and to perform structural equation modeling (SEM).

Descriptive Analyses

As Table 1 shows, mean CR scores were high (over 4 out of 5), and mean SU scores were moderate and rather low (e.g., Item SU4). All CR items correlated positively and significantly with each other, but SU items did not (e.g., SU4 and SU9). The correlations between the two factors were positive in all cases except for the correlations between SU and Items CR1 and CR3, which were negative, albeit nonsignificant. Kurtosis and asymmetry indices were lower than 2, which shows univariate normality.

The MANOVA revealed that boys scored higher than girls on SU ($M = 3.98$ boys vs. 3.49 girls; $F = 15.28$, $p < .01$) with a small effect size ($\eta_p^2 = .03$). No differences were observed in the case of CR ($M = 4.50$ boys vs. 4.56 girls; $F = 0.31$, $p > .05$), or as a function of age ($F = 0.36$ and $F = 0.04$ for CR and SU, respectively, $p > .05$).

Confirmatory Factor Analysis and Reliability

The factorial structure of the scale was analyzed using the weighted least squares mean and variance adjusted (WLSMV) estimation. The fact that classroom was our sample unit violated the assumption of independence of observations. This might have inflated the chi-square (χ^2) value and underestimated standard errors (Stapleton, 2006). For this reason, the "cluster" option for classrooms

and COMPLEX function were used in all analyses. We used the results of the confirmatory factor analysis (CFI) to analyze composite reliability.

Following the original structure, we tested the two-correlated-factor solution (see Table 2). The solution showed good fit indices (χ^2 [34] = 109.98; root mean square error of approximation (RMSEA), 90% confidence interval (CI) [0.05, 0.08] = 0.07; CFI = 0.95; Tucker-Lewis index (TLI) = 0.93). As shown in Table 2, all parameters were positive and significant ($p < .05$). In the case of the CR factor, the standardized weights ranged between .60 (Item CR5) and .70 (Item CR3). In the case of SU, they ranged between .84 (Item SU6) and .32 (Item SU4). The correlation between the two factors was .32 ($p < .01$).

Reliability, as measured with Cronbach's alpha, was adequate for CR ($\alpha = .77$) and low for SU ($\alpha = .52$). Considering that alpha values may underestimate the real population value, we calculated the composite reliability index (Graham, 2006), which resulted in reliability values of .81 and .66 for CR and SU, respectively. We noted the low reliability values of SU9 (alpha and composite reliability index).

Gender Invariance

Fit indices of the model for boys (χ^2 [34] = 86.40; RMSEA, 90% CI [0.06, 0.10] = 0.08; CFI = 0.93; TLI = 0.91) and girls (χ^2 [34] = 62.15; RMSEA, 90% CI [0.04, 0.09] = 0.06; CFI = 0.96; TLI = 0.95) were similar to each another and with regard to the model that included the whole sample.

TABLE 1
Descriptives and Correlations of ERQ-SpA Items

	CR1	SU2	CR3	SU4	CR5	SU6	CR7	CR8	SU9	CR10
CR1	1.00									
SU2	0.02	1.00								
CR3	0.46**	0.10*	1.00							
SU4	−0.01	0.15**	−0.05	1.00						
CR5	0.29**	0.11*	0.38**	0.06	1.00					
SU6	0.03	0.47**	0.13**	0.26**	0.11*	1.00				
CR7	0.36**	0.13**	0.35**	0.10*	0.38**	0.22**	1.00			
CR8	0.28**	0.11*	0.35**	0.13**	0.35**	0.20**	0.39**	1.00		
SU9	0.16**	0.15**	0.15**	0.07	0.18**	0.23**	0.17**	0.16**	1.00	
CR10	0.33**	0.01	0.33**	0.11*	0.34**	0.17**	0.43**	0.39**	0.18**	1.00
Mean	4.85	3.93	4.78	2.57	4.81	3.76	4.34	4.06	4.72	4.25
SD	1.79	2.04	1.88	2.08	1.78	2.00	1.87	1.78	2.09	1.87
Q1	−0.46	0.06	−0.46	1.01	−0.41	0.15	−0.17	−0.02	−0.43	−0.13
Q2	−0.52	−1.12	−0.66	−0.43	−0.69	−1.01	−0.82	−0.60	−1.06	−0.84

Note. CR, cognitive reappraisal; ERQ-SpA, Emotion Regulation Questionnaire for Spanish Adolescents; SU, expressive suppression; Q1, skewness; Q2, kurtosis.
*$p < .05$; **$p < .01$.

TABLE 2
Parameters of the Two-Correlated-Factor Model

Factor	Item: original and Spanish translation	Path (standard)	SE (standard)
Factor 1 CR	CR1 When I want to feel happier, I think about something different	1.00 (.61)*	.00 (.03)
	Cuando quiero sentirme mejor (p.e., alegre, feliz) pienso en otra cosa		
	CR3 When I want to feel less bad, I think about something different	1.15 (.70)*	.07 (.03)
	Cuando no quiero sentirme tan mal (p.e., triste, enfadado), pienso en otra cosa		
	CR5 When I'm worried about something, I make myself think about it in a way that helps me feel better	0.99 (.61)*	.07 (.03)
	Cuando algo me preocupa, me esfuerzo en pensar en eso de una manera que me ayude a sentirme mejor		
	CR7 When I want to feel happier about something, I change the way I'm thinking about it	1.14 (.70)*	.08 (.04)
	Cuando quiero que algo me haga sentir mejor, cambio mi manera de pensar sobre eso		
	CR8 I control my feelings about things by changing the way I think about them	1.01 (.62)*	.07 (.03)
	Controlo mis emociones cambiando la manera de pensar sobre la situación en la que estoy		
	CR10 When I want to feel less bad about something, I change the way I'm thinking about it	1.04 (.64)*	.06 (.03)
	Cuando no quiero sentirme tan mal con algo, cambio mi manera de pensar sobre eso		
Factor 2 SU	SU2 I keep my feelings to myself	1.00 (.61)*	.00 (.04)
	No hablo de mis emociones con los demás		
	SU4 When I am feeling happy, I am careful not to show it	0.53 (.32)*	.10 (.06)
	Cuando estoy feliz intento que no se me note		
	SU6 I control my feelings by not showing them	1.39 (.85)*	.16 (.05)
	Manejo mis emociones no mostrándolas a los demás		
	SU9 When I'm feeling bad, I'm careful not to show it	0.76 (.46)*	.10 (.06)
	Cuando me siento mal, intento que no se me note		
Factor 1 with Factor 2		0.12 (.32)*	.03 (.06)

Note. CR, cognitive reappraisal; SU, expressive suppression.
*$p < .01$.

TABLE 3
Gender Invariance Models

	χ^2	df	RMSEA	CFI	ΔCFI	Δ model
1. Configural model	175.07	78	.07	.93		
2. Metric model	193.47	86	.07	.93	−.007	2. vs. 1.
3. Scalar model	240.55	124	.05	.92	−.006	3. vs. 2.

Note. CFI, comparative fit index; RMSEA, root mean square error of approximation, with a confidence level of 90%.
The model was considered acceptable when RMSEA values ranged between .05 and .08, with values above .10 indicating a poor fit; and when CFI values were higher than .90. When ΔCFI of two nested models was >.01, the restricted model was accepted. If ΔCFI was ≤.01, then all restrictions were held and the three models were deemed equal.

Three nested models were conducted to further analyze the gender invariance of the instrument. The configural model examined whether or not the same items were associated with the same factors in the two groups (Coenders, Batista-Foguet, & Saris, 2005). The metric model added restrictions to the regression parameters and explored whether or not the strength of the relationship between each item and its construct or underlying factor was identical in the two groups. The scalar model evaluated whether or not the mean intergroup differences in variables were explained by differences in the means of the factors.

Invariance analyses (see Table 3) did not yield significant differences among the three nested models. All models showed good fit indices and were invariant as a function of gender, as evidenced by the ΔCFI, which was lower than .01 in all cases (Cheung & Rensvold, 2002).

Predictive Validity

In order to examine the predictive validity of the instrument, we conducted longitudinal SEM to test for the predictive relationship between CR and SU at Time 1, and depressive symptoms at Time 2 (see Figure 1).

Fit indices were good (RMSEA, 90% CI [0.03, 0.05] = 0.04; CFI = 0.93; TLI = 0.92) and all latent factor indicators were positive and significant. All autoregressive parameters were also positive and significant, which showed the temporal stability of the factors (CR: β = .59, $p < .05$, SU: β = .79, $p < .05$). The two ER strategies maintained a low but positive and significant relation (ranging from β = .16 for SU to β = .18 for CR, all $p_s < .05$) that is, over time, adolescents used both CR and SU to deal with their emotions.

Reliability of the Depression scale was good (α = .79 and composite reliability index = .81). Regarding the predictive relation between CR, SU, and depression (see Figure 1), the results showed that depression symptoms at Time 2 were negatively related to sustained CR (β = $-.39$, $p < .05$) and positively related to sustained SU (β = .72, $p < .05$). In addition, indirect effects confirmed two routes by which emotion regulation may influence depressive symptoms. On the one hand, the CR route, starting at Time 1 and going through Time 2, yielded a negative relation (β = $-.15$ [standardized = $-.12$], $p < .05$). On the other hand, the SU route, starting at Time 1 and going through Time 2, yielded a positive relation for the occurrence of depressive symptoms (β = .39, $p < .05$). No other indirect effect was significant.

DISCUSSION

As in previous studies, the two-factor structure, namely CR and SU, showed good fit indices. In our study, however, CR and SU were positively related to each other; that is, adolescents reported using both of them. While this contradicts the finding of Gullone and Taffe (2012), who reported a negative relation, it is in line with the original definition of CR and SU as two independent strategies (Gross, 1998; Gross & John, 2003) that may be used by the same person at different times depending on the situation.

Results of the reliability study yielded higher internal consistency for CR than for SU. The low alpha value of Item SU9 along with the low reliability of SU, repeatedly reported in the literature (e.g., Gullone & Taffe, 2012), calls for the reconsideration of the SU items in future versions of the instrument. Autoregressive values were positive, which shows the stability of both measures, replicating previous findings (Gross & John, 2003; Gullone & Taffe, 2012).

As hypothesized, whereas there was no difference in the use of CR as a function of gender, boys reported using SU significantly more often than girls, although the effect size was small (see also Gross & John, 2003; Gullone & Taffe, 2012; Teixeira et al., 2015). Differences in the use of SU as a function of gender are usually attributed to the process of socialization in Western cultures, where boys are taught to inhibit their emotional expressions to a greater extent than girls (e.g., Brody, 2000). Further studies are necessary to ascertain whether the use of SU is more complex than it appears, and may depend on specific emotions and contexts (Gross & John, 2003).

The predictive validity study revealed that depression was negatively related to CR and positively related to SU; that is, the more adolescents tend to hide their emotions, the more they report feeling depressed. On the contrary, adolescents who tend to reappraise a negative situation into a neutral or positive one (i.e., CR) report less depressive symptomatology. This is in line with previous evidence (Chambers et al., 2009; Gross & John, 2003), although this is the first time it is reported in relation to depressive symptomatology as presented in Spanish nonclinical adolescents.

Before concluding, we note that this study is not without its limitations, chief among them the use of only healthy adolescents aged 11–17 years. Future studies will determine whether the relations found in this study are observed with adolescents who show a higher frequency and/or intensity of
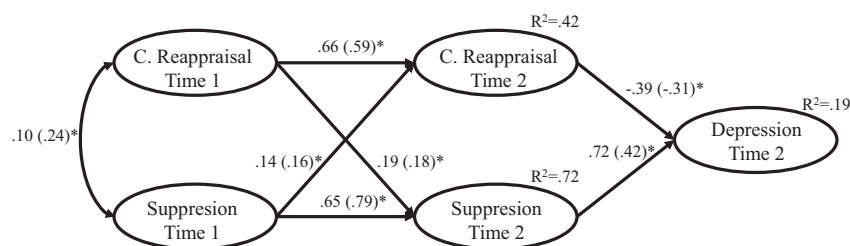
Note. *$p < .05$; Regression (and standardized regression) paths are indicated above the arrows.

FIGURE 1   Paths and explained variance in longitudinal SEM.

depressive symptomatology, including 10-year-old children and 18-year-old adolescents, to match the age range of the original instrument. Future extended longitudinal designs could also incorporate the analysis of other variables that may impact the relations tested, such as personality factors (Gresham & Gullone, 2012) and indices of well-being other than self-reported depressive symptomatology.

All in all, this is the first study that tests the psychometric properties of the ERQ-CA, including its predictive validity, in a sample of nonclinical Spanish adolescents. The Emotion Regulation Questionnaire for Spanish Adolescents is a psychometrically sound two-factor instrument, gender-invariant, stable in time, and related to depressive symptomatology in the expected direction.

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