

## EMOTION REGULATION CHECKLIST



## UNIVERSITÀ DEGLI STUDI DI TORINO

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**The Emotion Regulation Checklist Italian Translation  
Validation of parents and teacher versions**

**Abstract**

Our research explored the factor structure and the reliability of the Italian version of the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), an instrument that has been widely adopted in studies using parents and/or teachers as informants. We carried out two studies evaluating the properties of the Italian ERC (ERC-I) when completed by parents and teachers, respectively. Study 1 participants were kindergarten and elementary school children for whom the ERC was completed by their mothers. Study 2 involved kindergarten and elementary school children for whom the ERC was completed by their teachers. The work confirms the two-factor structure of the instrument, supporting structure validity and the reliability of ERC.

Keywords: Emotion Regulation; Other-reports; Italian version; Emotion Regulation Checklist.

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### **The Emotion Regulation Checklist Italian Translation Validation of parents and teacher versions**

Emotion regulation, as the ability to decrease, maintain, or increase one's emotional arousal to facilitate engagement with the context, plays a fundamental role in affective, social, and cognitive development (e.g., Kim-Spoon, Cicchetti, & Rogosch, 2013). The relevance of this construct is suggested by the large amount of literature studying it from infancy to adolescence, also documenting its role in most forms of psychopathology (e.g., Blair & Diamond, 2008; Kim-Spoon et al., 2013; Suveg & Zeman, 2004).

The major difficulty in studying emotion regulation in children concerns measurement (Cole, Martin, & Dennis, 2004): Observational methods are time-consuming and costly, while self-report instruments are inappropriate for preschoolers and younger primary school. Other-report instruments represent a potential means of overcoming these obstacles, although not all emotion-related information may be accessed via the reports of other informants (Thompson & Meyer, 2007).

The Emotion Regulation Checklist (ERC, Shields & Cicchetti, 1997) is an other-report questionnaire that evaluates two dimensions of emotion regulation, regulation and negativity, in preschoolers and school-aged children via items describing the child's behaviour. Emotion regulation, one of the factor at the basis of children's individual differences from the preschool period, is conceptualized as the capacity to adjust one's own arousal to adapt to the environment; negativity, emerging already in the first year, relates both to children's promptness against emotional antecedents and to their coping responses following negative emotions (Kim-Spoon et al., 2013; Rothbart & Bates, 2006; Rothbart, Ellis, & Posner, 2004). The ERC may be completed by parents, teachers, or other adults familiar with the child (Hyson, 2004; Shields & Cicchetti, 2001). Its reliability has been supported by several studies involving summer camp counsellors, who rated children's behaviour after 35 hours of observation (e.g., Curtis & Cicchetti, 2007). The instrument

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has been widely used in research on emotion regulation in childhood, investigating how it is affected by maltreatment and mothers' mental health; analyzing the relationships with resilience, emotions, and appropriate social behaviours; exploring its role for children's mental health (e.g., Bandon, Calkins, Keane, & O'Brien, 2008; Curtis & Cicchetti, 2007; Kim, Cicchetti, Rogosch, & Manly, 2009; Onchwari & Keengwe, 2011; Shields & Cicchetti, 1998; Suveg & Zeman, 2004). The instrument has been translated and successfully used in different languages (e.g., Kapçi, Uslu, Akgün, & Acer, 2009).

The two studies presented here were conducted with the aim of validating the ERC for use in the Italian context when completed by parents and teachers, respectively.

### Study 1.

#### Method

#### Participants and Procedure

The sample (labelled "Sample 1") comprised 1,417 children aged between 3 and 11 years ( $M = 8.08$ ;  $SD = 2.03$ ; 52.3% girls); 241 participants were at kindergarten, while 1,176 were elementary school students. All questionnaires were completed by mothers. Data were collected across several regions of Italy under the supervision of a network of university research groups: Turin, Pavia, Verona and Parma (in Northern Italy), Roma "Sapienza", Roma "Foro Italico" and Roma 3 (in Central Italy) and Palermo (in Southern Italy). The study followed the norms for ethical research and was approved by the Italian Psychology Association.

#### Instrument

The ERC consists of 24 items assessing processes central to emotionality and regulation in children, such as affective lability, intensity, valence, flexibility, and situational appropriateness (Shields & Cicchetti, 1997; 1998). Items, reported in Table 2, are rated on a 4-point Likert scale assessing the frequency of behaviours (from 1=almost always to 4=never) and are divided into two subscales: Emotion Regulation and Lability/Negativity. Emotion Regulation is evaluated by 8

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items<sup>1</sup> describing situationally appropriate affective displays, empathy, and emotional self-awareness. The higher scores indicate a greater capacity to manage and modulate one's emotional arousal such that an optimal level of engagement with one's environment is promoted. The Lability/Negativity subscale comprises 15 items assessing inflexibility, dysregulated negative affect, and unpredictability and suddenness of mood change<sup>2</sup>. The higher scores indicate a condition of excessive emotional reactions and frequent mood changes in emotion unrelated to external events or stimuli. The Italian version (Molina, Sala, & Zappulla, 2011) was adapted from English to Italian by different independent translators. Secondly a bilingual translator back-translated the Italian version. The back-translation procedure from Italian to English proved to be identical in content with the original ERC.

### Data Analysis

Missing data were treated using listwise deletion<sup>3</sup>. First, the sample was randomly divided into two sub-samples ("Sample 1a" and "Sample 1b") and the homogeneity of the two sub-groups controlled, using the t-test for the variable age and Fisher's F for the variables gender and grade of school. Exploratory factor analysis was then carried out on the Sample 1a using principal axis factoring because the data violated the assumption of multivariate normality; this was followed by oblimin rotation, given that the dimensions were correlated. Next, confirmatory factor analysis was carried out on the covariance matrix of the Sample 1b using Lisrel 8.72 (Jöreskog & Sörbom, 1996). The Satorra-Bentler scaled correction of ML was used to provide an adjusted, more robust measure of fit for non-normal data (Hu, Bentler, & Kano, 1992). The criteria described by Hu and Bentler (1999) were used to evaluate goodness of fit. Finally, the internal consistency of the scales was assessed for the whole sample via coefficient alpha.

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<sup>1</sup> This excludes Item 12, which in the original validation did not load on either scale (Shields & Cicchetti, 1997).

<sup>2</sup> It is worthy of note that conceptual overlap mainly occurs in items assessing impulsive and prosocial traits. The authors included these dimensions in the original scale as descriptors of a broad construct of emotion regulation across a wide age range.

<sup>3</sup> Subjects presenting missing data, thus excluded from the Sample 1 and the Sample 2 (respectively n=47 and n=25), did not differ from the samples referring to gender and study variables. In both samples, some differences between included and excluded subjects emerged referring to age.

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### Results

Descriptive statistics were calculated as reported in Table 1. Then, the sample was divided and the homogeneity between the two sub-samples was checked. Sample 1a was composed of 722 children aged between 3 and 11 ( $M=8.19$ ;  $SD=1.97$ ), of whom 53.2% were girls and 84.8% primary school pupils. Sample 1b was composed of 695 children, aged between 3 and 11 ( $M=7.96$ ,  $SD=2.09$ ), of which 51.3% were girls and 81.2% primary school students. The sub-samples did not significantly differ from one another with regard to age ( $t_{(1916,203)}=.02$ ;  $p=.99$ ), gender ( $F_{(1)}=0.19$   $p=.66$ ) or grade of school ( $F_{(1)}=0.02$ ,  $p=.89$ ).

Explorative factor analysis indicated that the two-factor solution explained 27.35% of the variance. The 17,99 % of the variance was explained by the first factor, while the second explained the 9,36% of the variance. Compared to one, three and four factor solutions, the two factor solution was the most reasonable considering the Cattell's scree plot (see supplementary materials), the value of the REPR (Molinengo & Testa, 2010) and the clearness of the items' loadings. As shown in Table 2, there were differences between the factor solution in this study and that tested for the original instrument. While in the solution proposed by the authors of the original instrument, Item 12 did not load on any factor (Cicchetti, 2011), for the Italian sample this item loaded on the first factor, corresponding to "Lability/negativity". In addition, Item 5, which was expected to load negatively on the first factor, loaded positively on the second factor. Items 4, 6, 10, 11, 24 and 23 showed loadings lower than .25. Items 9, 19 and 16 loaded lower than .30. Item 2 loaded positively on the first factor, as expected and negatively on the second factor. The factors were negatively correlated with one another ( $r = -.30$ ).

Confirmatory factor analysis testing the original theoretical model was performed on the second sub-sample (see Figure 1). The original theoretical model refers to the model tested for the original version of the instrument (Shields & Cicchetti, 1997); in this study, Item 12 was administered and included in our analysis (as the use of EFA would suggest). The 2-factor model displayed acceptable goodness of fit:  $SB\text{-}Chi\text{-}Square = 965.29$ ,  $p < .001$ ,  $RMSEA = .064$ ;  $CFI =$

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.93, SRMR = .10. Results of confirmative factor analysis conducted separately with the school age group (n=1,176) showed acceptable fit indices. The size of the preschool aged group (n=241) did not allow to perform the analysis (see supplementary materials).

Internal consistency, assessed via Cronbach's alpha, were .72 for Lability/Negativity and .59<sup>4</sup> for Emotion Regulation.

### Discussion

The EFA partially confirmed the originally validated structure of the ERC; further efforts should be directed to deepen problems related to items showing low loadings. The CFA modestly support the two factor structure. As expected, the two latent factors were negatively correlated. Reliability was modest but, as showed in Table 3, this datum was in line with those of other studies using the ERC as a parent-report instrument (Blandon et al., 2008), confirming the correspondence with the original version of the instrument. Nevertheless, this result should be further deepen in order to control the item dimensionality.

### Study 2.

#### Method

##### Participants and Procedure

The sample (which is labelled “Sample 2”) comprised 910 children (53.2% girls) aged from 3 and 11 years (M=5.77; SD= 2.26). Of these, 532 were at kindergarten, while 378 were elementary school pupils. Teachers were asked to complete the ERC questionnaire for each child in their class. Parental consent was obtained by letter. The study followed the norms for ethical research and was approved by the Italian Psychology Association.

##### Instrument and Data analysis

Instrument and data analyses were the same as those described for Study 1. Sample 2 was divided in two sub samples respectively labelled “Sample 2a” and “Sample 2b”.

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<sup>4</sup> Considering the Explorative Factor Analysis results, we evaluated Cronbach's alpha for the Lability/negativity scale including item 12.

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### Results

First, the descriptive statistics showed in Table 1 were examined. Subsequently, the sample was divided and the homogeneity between the two sub samples was controlled. Sample 2a was composed of 453 children between 3 and 11 ( $M=5.83$ ;  $SD=2.25$ ), of whom 49.4% were girls and 43% attended primary school. Sample 2b comprised 457 children, aged between 3 and 11 years ( $M=5.70$ ,  $SD=2.28$ ), of whom 44% were girls and 40% primary school students. The two sub-samples did not significantly differ in relation to age ( $t_{(908)}=.93$ ;  $p=.35$ ), gender ( $F_{(1)}=2.70$ ,  $p=.09$ ) or grade of school ( $F_{(1)}=.84$ ,  $p=.38$ ).

Explorative factor analysis results showed that two-factor solution explained 47.16% of the variance. The first factor explained the 34.35% of the variance while the second factor explained the 12.81%. As in Study 1, Items 4 and 5 loaded negatively on the second factor. Item 6 displayed negative loading on the second factor, even if it loads moderately on the first factor. Item 12 and 23 showed loadings lower than .25. The factors were negatively correlated to one another ( $r = -.32$ ). CFA results indicated acceptable goodness-of-fit of the two-factor model was: SB-Chi-Square = 845.69,  $p < .001$ , RMSEA = .072; CFI = .98, SRMR = .10. Results of confirmative factor analysis conducted separately with the preschool ( $n=532$ ) and school age groups ( $n=378$ ) showed acceptable and comparable fit indices (see supplementary materials).

Cronbach's alpha values are displayed in table 3.

### Discussion

The EFA partially confirmed the originally proposed structure of the ERC. The CFA showed the two factor structure to provide a good fit for the Italian version. As expected, the two latent factors were negatively correlated. Reliability was acceptable and comparable with the original results (Shields & Cicchetti, 1997).

### Conclusions

This research was designed to explore the factor structure and the reliability of the Emotion Regulation Checklist- Italian Version (ERC-I) both as a parent-report and as a teacher-report instrument.



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Results of Study 2 show that the Italian version of the ERC is explained by the original two-factor structure as teacher report; additional analyses should be conducted to further validate the Italian ERC, in particular as parent report questionnaire. It would be interesting to measure convergent and discriminant validity by linking the ERC scores with other measures and observations, as done with the original version (Shields & Cicchetti, 1997; 1998).

Nonetheless, our studies confirm the two-factor structure of the ERC-I, offering new data supporting the reliability and structure validity of the instrument. Furthermore, our findings provide Italian research with a valuable instrument for the assessment of emotion regulation in the preschool and school years, as teacher report. The results also suggested the importance of attending to and verifying the correspondence of instruments translated for use in different cultural contexts.

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Table 1

Descriptive statistics

	Scales	M (SD)	Range	Skewness	Kurtosis
Study 1 (Sample 1; n=1,417)	ER	3.25 (.40)	1.38-4.00	-0.61	0.40
	LN	1.67 (.36)	1.00-3.13	0.67	0.36
Study 2 (Sample 2; n=910)	ER	3.11 (.55)	1.13-4.00	-0.60	0.07
	LN	1.60 (.52)	1.00-4.00	1.43	2.26

*Note.* LN=Lability/Negativity; ER=Emotion Regulation

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Table 2

Explorative factor analysis solutions for the two sub-sample.

Items	Study 1 (Sample 1a; n=722)		Study 2 (Sample 2a; n=457)	
	factor 1	factor 2	factor 1	factor 2
2	.35	-.32	.48	
4*				-.45
5*		-.45		-.57
6			.31	-.52
8	.53		.70	
9*	.27		.48	
10			.69	
LN 11*			.49	
12	.35			
13	.59		.82	
14	.53		.75	
17	.48		.76	
19	.27		.47	
20	.64		.77	
22	.62		.87	
24			.69	
1		.62		.73
3		.54		.64
7		.58	-.39	.62
15		.43		.53
ER 16*		.27		.65
18*		.32		.62
21		.29		.45
23				

Note. LN=Lability/Negativity; ER=Emotion Regulation; Loadings >.25 are reported; \*reverse items

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Table 3

Cronbach's alpha

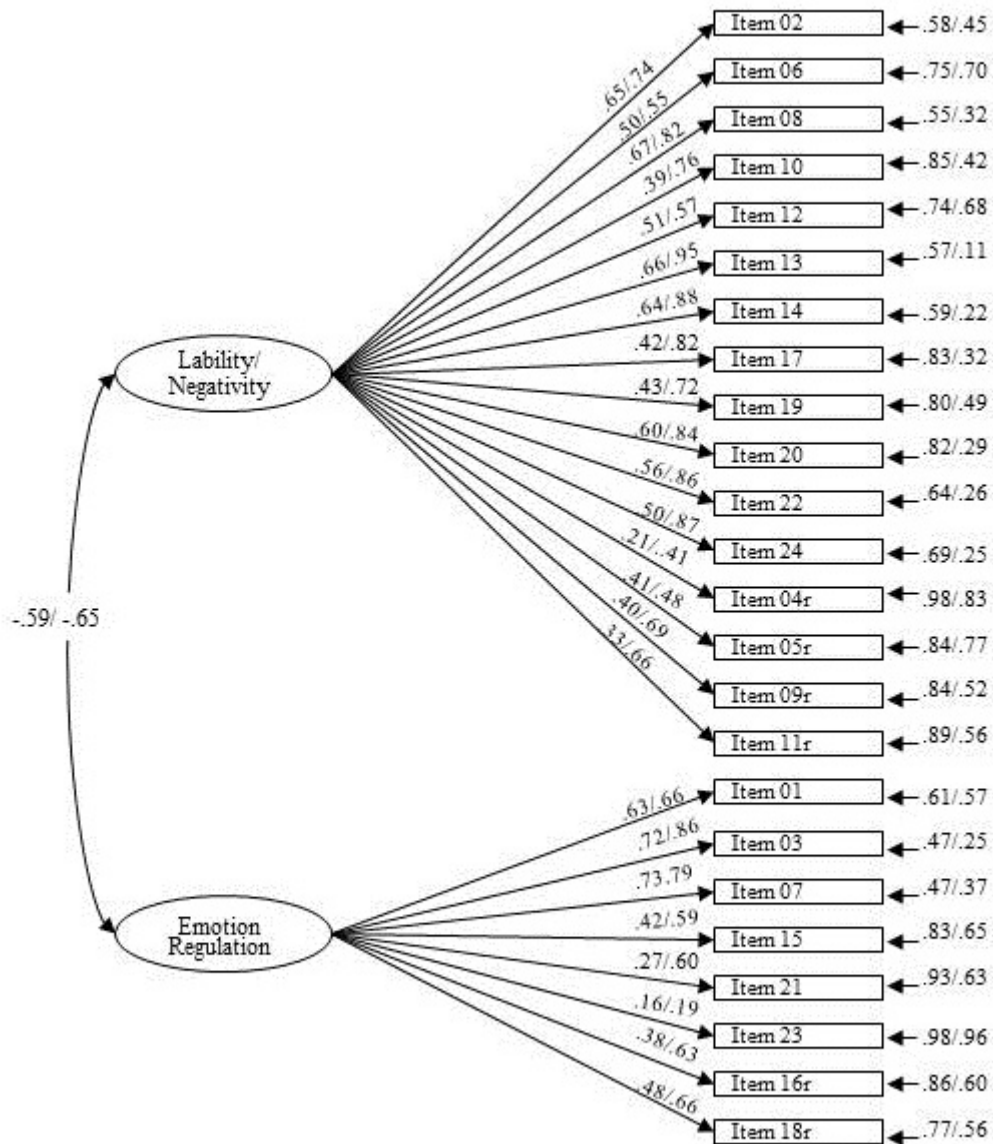
		ER	LN
Italian	Study 1 (Sample 1; n=1,417)	.59	.72
	Study 2 (Sample 2; n=910)	.79	.90
(Bandon, Calkins, Keane, & O'Brien, 2008).	parents	.59-.66	.84-.87
Validation study (Shields & Cicchetti, 1997)	teachers	.83	.96

Note. LN=Lability/Negativity; ER=Emotion Regulation.

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Figure 1

Factor structure of the Emotion Regulation Checklist. Standardized factor loadings are presented in the following order: study 1 (Sample1b; n=695)/ study 2 (Sample 2b; n=453).



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