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Cognitive Emotional Regulation Questionnaire: a Factorial Validation Study in Spanish for Children (CERQ-k)

Cuestionario de Regulación Emocional Cognitiva: un estudio de la validación factorial en español, para niños (CERQ-k)

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Abstract.

Background: The cognitive regulation of emotions is a fundamental variable in socio-affective functioning, being an essential skill in childhood due to its relationship with multiple areas of social functioning. Although there is a version that allows evaluating this construct (CERQ-k), translated and adapted for Argentine children, the structural model found does not fully coincide with the model proposed by the authors of the original version of CERQ. **Objective:** To test, through Confirmatory Factor Analysis (CFA), the model obtained in the adapted version and compare it with that of the original version of the instrument. **Method:** From a non-probabilistic sample, 761 children between the ages of 9 and 12, from the provinces of Entre Ríos and Córdoba, participated in the study. Descriptive analyzes of the items, CFA, and reliability analysis were carried out. **Results:** The CFA indicated an adequate fit in both models, although the second-order model proved to be more parsimonious and with satisfactory fit and error indices. **Conclusion:** The CERQ-k version adapted to Argentina, whose structure has been confirmed in this study, allows a valid and reliable measure of the construct to evaluate the cognitive regulation of emotion in children aged 9 to 12 years.

Resumen.

Introducción: La regulación cognitiva de las emociones es una variable fundamental en el funcionamiento socioafectivo, siendo una habilidad esencial en la infancia por su relación con múltiples áreas del funcionamiento social. Si bien existe una versión que permite evaluar este constructo (CERQ-k), traducida y adaptada para niños argentinos, el modelo estructural encontrado no coincide plenamente con el modelo propuesto por los autores de la versión original del CERQ. **Objetivo:** Poner a prueba, a través de Análisis Factorial Confirmatorio (AFC), el modelo obtenido en la versión adaptada y compararlo con el de la versión original del instrumento. **Método:** A partir de una muestra no probabilística, 761 niños de 9 a 12 años, de las provincias de Entre Ríos y Córdoba, participaron del estudio. Se realizaron análisis descriptivos de los ítems, AFC y análisis de fiabilidad. **Resultados:** El AFC indicó un ajuste adecuado en ambos modelos, aunque el de segundo orden demostró ser más parsimonioso y con índices de ajuste y error satisfactorios. **Conclusión:** La versión CERQ-k adaptada a Argentina, cuya estructura ha sido confirmada en este estudio, permite una medida válida y confiable del constructo para evaluar la regulación cognitiva de la emoción en niños de 9 a 12 años.

Keywords.

Cognitive Emotional Regulation; Questionnaire; Children; Confirmatory Factorial Analysis.

Palabras Clave.

Regulación cognitivo-emocional; Cuestionario; niños; Análisis factorial confirmatorio.

1. Introduction

The cognitive regulation of emotion consists of the way of regulating emotions through thoughts or cognitions (Garnefski et al., 2007; Thompson, 1991). This concept is closely related to the construct of cognitive coping. An important difference between the two is that the coping strategies focused on emotion and on the problem, which includes a combination of mechanisms, both cognitive and behavioral, while cognitive emotional regulation assumes that thought and behavior are different processes and, therefore, considers cognitive strategies in a purely conceptual way, independent of the behavioral strategies (Garnefski et al., 2007).

Cognitive coping or the cognitive components of emotional regulation have not been studied in depth, isolated until now from the other dimensions of coping. As a result, although there has been considerable interest in the cognitive processes as regulators, not much is known about how cognitions regulate emotions and how this can affect the course of emotional development. Ellis (1985) and other cognitivists (e.g., Beck, 1976) have long maintained that ways of thinking (or evaluating) that are consistently wrong may lead to persistent emotional discomfort and social dysfunction (Lazarus, 1990).

The aim of emotional regulation is not to eliminate the emotions that are considered to be inadequate, replacing them with more adequate or positive ones, but to influence the dynamic of each emotion in order to generate answers which are adaptive to the context (Aldao, 2013). In this way, the regulation through the cognitions can help to manage and regulate emotions, in order to maintain control over them in such a way that the subject is not overwhelmed during stressful moments or when facing negative events or situations (Kraaij et al., 2003).

Regulating emotions is an essential ability that promotes a healthy level of social and emotional development in childhood (Morris et al., 2017). In addition, it is associated with healthy long-term relationships (Morris et al., 2018), prosocial behavior, social skills, and academic achievements (Eisenberg et al., 2010). Likewise, difficulties in their regulation lead to problems of internalizing and externalizing behaviors (Eisenberg et al., 2010).

The main cognitive strategies that are mentioned in the literature are the following:

- 1. Distraction:** it refers to the tendency of the child to think about nice and pleasant topics instead of the negative event. Since it is a quick process, this strategy, as compared to others (e.g. cognitive reevaluation), could be used more effectively when the emotional intensity is high (McRae, 2016). However, distraction may be maladaptive if it is mainly used as a way of avoiding the experiencing of unpleasant emotions (Wolgast & Lundh, 2017).
- 2. Self-blame:** it refers to thoughts of blaming oneself for what has been experienced. Several studies have found that a self-blaming attributional style is related

to depression and other measures of psychopathology, although the results regarding the exact relationship among the two are not consistent (Anderson et al., 1994).

- 3. Other-blame:** it consists of those thoughts in which guilt is placed on others. Some studies have shown, through samples of subjects who underwent threatening experiences, that the tendency of blaming a third party is associated with worse emotional wellbeing (Tennen & Affleck, 1990).

- 4. Positive reappraisal:** it implies the construction of positive or benign interpretations of a stressful situation as a way of changing its emotional impact (Gross & John, 2003). It is considered as effective in order to diminish the physiological reactivity, to reduce the levels of negative emotional experience and to increase the levels of positive emotional experience (Gross & John, 2003; Ray et al., 2010).

- 5. Refocus on planning:** it implies the elaboration of a plan to try to solve the problem. It is the cognitive aspect of the type of coping centered in the action. It is positively associated with the adaptive control of anger (Martin & Dahlen, 2005) and negatively associated with internalizing disorders, such as depression and anxiety (Garnefski et al., 2001).

- 6. Putting into perspective:** this strategy would refer to the minimization of the seriousness of a negative situation, emphasizing its relativity as compared to other events (Garnefski et al., 2001). It is associated with a lower level of depression and higher self-esteem (Hayes et al., 2005).

- 7. Catastrophizing:** it is defined as the tendency to explicitly emphasize how terrible the experience was (Garnefski et al., 2001), to focus and exaggerate the value of the threat of the event (Rosenstiel & Keefe, 1983). It is considered as a predictor of chronic pain (Lumley et al., 2002). Moreover, it is related to anxiety in children (Legerstee et al., 2010), problems of social functioning, and stress in adolescents (Mihalca & Tarnavska, 2013).

- 8. Rumination:** it refers to the process of thinking perseveringly about one's own feelings and problems, their possible causes and consequences, in a repetitive and passive way (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2008). It is linked to anxiety (Muris et al., 2004; Verstraeten et al., 2011) and depressive symptoms (Rood et al., 2009) in children and adolescents. Although this strategy is usually considered as maladaptive, as is mentioned by Payás (2008), in some cases, this repetitive review of the negative event could help to deal with the emotional impact and contribute to finding a new sense.

- 9. Acceptance:** it is a strategy destined to allow the experience of the emotion, without trying to alter it or suppress it (Hofmann & Asmundson, 2008), characterized by thoughts of acceptance and resignation in the face of what has been experienced. Research in adult population point that acceptance is related to lower levels

of subjective stress, avoidant behavior and catastrophic thoughts (Eifert & Heffner, 2003; Karekla et al., 2004). It is used in training programs to improve the mental health of children and adolescents (Raes et al., 2014; Van der Oord et al., 2012).

Garnefski et al. (2001) pointed that these nine strategies could be divided into adaptive and maladaptive ways of regulation. The strategies that would conform the first group are acceptance, positive refocusing, putting into perspective, positive reappraisal, and refocus on planning, while the maladaptive strategies are self-blame, rumination, catastrophizing, and other-blame.

In order for a strategy to be considered as adaptive or maladaptive, it is necessary to evaluate its effects in affective states, cognitions, and behaviors, as well as its relation to the psychopathology (Aldao et al., 2010; Kring & Sloan, 2010; Nolen-Hoeksema & Watkins, 2011). On the other hand, emotional regulation will be more effective depending on the characteristics of the individual, the situation, and the objectives set for the determined situation (Gross, 2015).

Regarding the measurement of the construct of emotional regulation in children and adolescents, few instruments are found for a population of Spanish-speakers, since research and instruments (of a self-report type) are scarce (Gómez Pérez & Calleja Bello, 2017). Some of the instruments used to measure this construct in children and teenagers are detailed in Table 1.

It is worth mentioning that among the instruments presented in Table 1, the CERQ-k is a multidimensional scale that allows the identification of cognitive strategies of emotional regulation that infants use after experiencing stressful or negative events. This questionnaire was chosen because it allows to evaluate exclusively the thoughts after having experienced a negative situation, since other scales do not distinguish them from the real actions that take place (Garnefski et al., 2007). As the authors of the original instrument mention, emotional regulation through cognitions is a relevant topic for mental health and research, which deepen on how this regulation takes place in childhood and how it could affect the emotional development.

In the last decades, this construct and the processes involved have gained more relevance in the research arena both in adult and child population (Gross, 2014; Gross et al., 2006), being considered as a key element in the emergence of certain psychopathologies when this process of regulation turns out to be deficient (Sheppes et al., 2015). On the other hand, the ability of adequately regulating emotions would be considered as a protective factor for mental health (Silva, 2005), being the dysfunctional strategies a risk factor for the development of behavioral and emotional problems (Andrés, 2016; Rawana et al., 2014, Romero Godínez et al., 2017).

On their part, Aldao et al. (2010) found that maladaptive strategies of emotional regulation, such as avoidance, rumination, and difficulties in reevaluation, were strongly related to depression and anxiety, and had a moderate effect in eating disorders and substance abuse. In another study, with a sample of university students, it was observed that rumination positively predicted the symptoms of depression and that positive refocusing negatively predicted this relation (Andrés et al., 2017).

Specifically in Spanish child population, ages 8 through 12, it was observed that those who presented symptomatology of anxiety used maladaptive strategies of emotional regulation, as compared to children without these symptoms (Rodríguez-Menchón et al., 2021). Likewise, in a research conducted in Mexico with boys and girls aged 9 to 11, it was found that self-blame and rumination were the maladaptive strategies most used by children when facing panic attacks, generalized anxiety, and obsessive-compulsive disorder. It was also observed that maladaptive strategies were positively linked to the intensity of the fear (Reyes Pérez, 2021). At the same time, Melero et al. (2021), in a research carried out in Spain with children aged 8 to 12, found that the children who presented higher scores in depression also scored higher in maladaptive strategies of emotional regulation, such as self-blame, catastrophizing, and other-blame, and that they had lower scores in positive reevaluation (adaptive strategy). Similar results were also found in other current pieces of research in children and adolescents (Andrés et al., 2016, Compas et al., 2017, Schäfer et al., 2017).

Besides, Melero et al. (2021) specified that children who used maladaptive strategies such as self-blame, catastrophizing, rumination, and other-blame showed higher scores in difficulties in psychological adaptation (emotional, behavioral, and interpersonal problems). When considering the adaptive strategies, the children who used positive reevaluation showed less likelihood of presenting problems with their peers; moreover, planning, positive refocusing (distraction), and positive reevaluation were related to prosocial behaviors.

On the other hand, in the research carried out in Argentina, it was found that cognitive strategies of emotional regulation mediated the relationship between personality traits and psychological well-being, anxiety, and depression in children aged 8 to 12 (Andrés, 2016, Andrés, Castañeiras & Richaud, 2014b). The authors specifically detailed that cognitive reevaluation mediated the relationship between extraversion and psychological well-being of children; those who showed a higher use of this strategy obtained better well-being. Likewise, it was found that the most maladaptive cognitive strategies were related to anxiety and depression (Andrés, Castañeiras, & Richaud de Minzi, 2014a).

The act of reducing negative emotional impact caused by an adverse situation could be considered as one of the

Table 1

Self-report Instruments to Measure Emotional Regulation in Spanish-speaking Children and Adolescents

Abbreviation	Scale Name	Author(s)	Country	Sample	Dimensions	Internal consistency	N° of items
CERQ-ShortE	Short Cognitive Emotion Regulation Questionnaire	Rey and Extremera (2011)	Spain	248 adolescents	Self-blame Acceptance Rumination Positive Refocusing Refocus on Planning Positive Reappraisal Putting into Perspective Catastrophizing Other-blame Self-blame	.68 .65 .64 .64 .65 .52 .62 .64 .52 .65	18
CERQ-Sk	Spanish version of Cognitive Emotion Regulation Questionnaire for children	Orgilés, Morales, Fernandez, Martínez, Ortigosa-Quiles, & Espada (2018) [Adaptation of CERQ-k, Garnefski et al. (2007)]	Spain	582 adolescents	Acceptance Rumination Positive Refocusing Refocus on Planning Positive Reappraisal Putting into Perspective Catastrophizing Other-blame	.56 .71 .75 .70 .65 .67 .69 .70	36
CERQ-Sk Short	Short version of the Cognitive Emotion Regulation Questionnaire for Spanish children	Orgilés, Morales, Fernandez-Martínez, Melero & Espada (2018) [Adaptation of CERQ-k, short version, Garnefski & Kraaij (2007)]	Spain	654 adolescents	Self-blame Acceptance Rumination Positive Refocusing Refocus on Planning Positive Reappraisal Putting into Perspective Catastrophizing Other-blame	.54 .70 .60 .70 .62 .47 .61 .66 .61	18
CSMS CAMS CWMS Chile	Children's emotion Management Scales: Anger, Sadness, and Worry	Mendoza (2010) [Adaptation of Zeman et al. (2001); Zeman et al. (2010)]	Chile	190 Children	Emotion Regulation Inhibition Dysregulated-Expression	.60 .57 .51	11

Abbreviation	Scale Name	Author(s)	Country	Sample	Dimensions	Internal consistency	N° of items
DEERS-E	Spanish version of the Difficulties Emotion Regulation Scale (DEERS)	Gómez, Penelo, & De la Osa (2014)	Spain	642 adolescents	Awareness Impulse Non-acceptance Goals Clarity Clarity Strategies	.62 .81 .84 .80 .71 .71 .71	36
DEERS-Méx	Spanish version of the DEERS for Mexican adolescents	Marín, Robles, González, Forteza, & Andrade (2012)	Mexico	455 adolescents	Non-acceptance Goals Awareness Clarity Strategies that facilitate emotional regulation Strategies that hinder/obstruct emotional regulation	.85 .79 .71 .68 .86	24
EREn	Scale of Emotional Regulation for Children	Ortiz (2014)	Mexico	190 children	Strategies that hinder/obstruct emotional regulation	.78	33
ERQ-CA	Emotion Regulation Questionnaire for Spanish adolescents	Navarro, Vara, Cebolla, & Baños (2018) [Adaptation of Gullone & Taffe (2012)]	Spain	399 adolescents	Cognitive Reappraisal Expressive Suppression	.61 0.64	10
ERQ-SpA	Emotion Regulation Questionnaire for Spanish Adolescent	Martín-Albo, Valdivia-Salas, Lombas & Jiménez (2020) [Adaptation of Gullone & Taffe (2012)]	Spain	462 adolescents	Cognitive Reappraisal Expressive Suppression	.77 .52	10
						(Composxite reliability index=.66)	

aims of emotional regulation (Gross & John, 2003), but when that purpose is not fulfilled, the flawed processes of regulation can have an impact on the onset or maintenance of a disorder (Hervás, 2011). Having adaptive strategies of emotional regulation would help children to stay calm when facing problematic situations, to reevaluate them in a positive manner, to resignify the event in order to reduce the negative effects at an emotional level, thus increasing the possibilities of answering and coping with negative situations (Reyes Pérez, 2021).

From a diagnostic and preventive perspective, it is necessary to have valid and reliable instruments in order to evaluate this construct in childhood, and the Cognitive Emotional Regulation Questionnaire (CERQ), elaborated by Garnefski et al. (2001), is one of the most used resources to evaluate this construct, since it has been adapted to many different countries and languages (Orgilés et al., 2018).

Although this instrument, in the childhood version, was translated and adapted to our context in a previous study and the psychometric results have proven satisfactory (Valega, 2012; Valega & Lemos, 2013), the structural model that was found does not completely match the model proposed by Garnefski et al. (2007). In this context, the objective of this study was to test, through Confirmatory Factorial Analysis, the model obtained in a previously adapted version (Valega & Lemos, 2013) and compare it to the theoretical model proposed by the original authors of the instrument.

2. Methods

The following research was carried out through a non-experimental, transversal, instrumental-like design (Ato et al., 2013, Montero & León, 2007, Servera & Cardo, 2006).

2.1 Participants

In order to conduct this research, an intentional, non-probabilistic sample of 761 students of primary level, who attended eight institutions in total, four public schools ($n = 378$) and four private schools ($n = 383$) in the provinces of Entre Ríos and Córdoba, 50.1% ($n = 381$) being male. The age range was between 9 and 12 ($M = 10.22$; $SD = .96$). The distribution of the minors was observed, based on what grade they were in, 37.5% being 4th-graders ($n = 285$), 33.9% 5th-graders ($n = 285$), and 28.6% 6th-graders ($n = 218$). The full sample was divided as follows: 263 children answered to the original version of 36 items and 498 to the reduced version of 27 items.

As inclusion criteria, it was considered that children were aged 9 to 12, were in school, had the consent of their parents or guardians, and were willing to participate in the study. Children who did not meet these criteria were excluded.

3. Instrument

The Cognitive Emotion Regulation Questionnaire (CERQ-k) is a self-report like questionnaire made by Garnefski et al. (2007), designed to evaluate nine strategies of cognitive emotional regulation that children aged 9 through 11 may use after having experienced a negative life event.

This test is made of 36 items with a Likert-like answer format of five options (*almost never, sometimes, regularly, frequently, almost always*). Each of the reactants refers exclusively to what the child thinks after going through a negative or stressful event. The dimensions that conform it are self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, catastrophizing, putting into perspective, and other-blame. The items are divided in proportion to the nine scales, so that all the subscales of the CERQ-k are made of four items. This instrument has proven to be valid and reliable to describe the cognitive strategies of emotional regulation in a Dutch population (Garnefski et al., 2007).

As was mentioned previously, this questionnaire was translated and adapted in a previous study (Valega, 2012; Valega & Lemos, 2013) with Argentinean children aged 9 through 12. The psychometric results that were found showed that this adaptation of the CERQ-k reflected valid and reliable answers in the sample under study. The adapted version was composed of 27 items, since four were eliminated for not being discriminative and seven for showing factor saturation lower than .30. Both the stability of the test (r Spearman Brown = .80) and its internal consistency were adequate (adaptive strategies $\alpha = .74$ and maladaptive strategies $\alpha = .79$). The reactants were regrouped, from a second-order exploratory factorial analysis, in two general dimensions, which in turn were divided into proactive thinking ($\alpha = .67$), positive refocusing ($\alpha = .74$), and putting into perspective ($\alpha = .59$) for the Adaptive Strategies; rumination ($\alpha = .77$) and self-blame ($\alpha = .65$) for the Maladaptive Strategies. Regarding the formation of the general dimension of adaptive strategies, the reactants, which originally belonged to the factor of planning and to the factor of positive reformulation, were grouped in the dimension called proactive thinking. In the same way, the items that belonged to the factor of acceptance and the factor of perspective weighed in only one dimension called perspective. On the other hand, the general dimension of maladaptive strategies was conformed by the aspects of rumination and self-blame, which included items from the original version that belonged to the strategies of rumination, self-blame, and catastrophizing.

3.1 Procedures followed during the data collection

In the first place, the project was presented to the educational institutions, in order to inform them about the purposes of the research and to ask for the authorization

Table 2

Descriptive statistics of the CERQ-k items

Items	M	SD	Skewness		Kurtosis	
			Statistic	Standard error	Statistic	Standard error
Item 1.	2.26	1.106	1.248	.150	1.024	.299
Item 2.	3.32	1.469	-.165	.150	-1.466	.299
Item 3.	3.10	1.454	.030	.150	-1.415	.299
Item 4.	3.64	1.390	-.594	.150	-1.067	.299
Item 5.	3.81	1.292	-.619	.150	-1.072	.299
Item 6.	3.49	1.472	-.405	.150	-1.325	.299
Item 7.	2.89	1.511	.162	.150	-1.470	.299
Item 8.	2.38	1.343	.798	.150	-.539	.299
Item 9.	1.80	.989	1.463	.150	2.045	.299
Item 10.	2.52	1.482	.615	.150	-1.088	.299
Item 11.	2.84	1.470	.271	.150	-1.364	.299
Item 12.	2.94	1.475	.171	.150	-1.418	.299
Item 13.	3.39	1.491	-.268	.150	-1.447	.299
Item 14.	3.55	1.429	-.393	.150	-1.330	.299
Item 15.	3.45	1.482	-.421	.150	-1.276	.299
Item 16.	2.69	1.415	.443	.150	-1.127	.299
Item 17.	2.76	1.432	.350	.150	-1.241	.299
Item 18.	1.71	1.157	1.754	.150	2.171	.299
Item 19.	2.48	1.370	.694	.150	-.775	.299
Item 20.	2.71	1.468	.488	.150	-1.200	.299
Item 21.	2.92	1.453	.230	.150	-1.381	.299
Item 22.	3.38	1.447	-.243	.150	-1.391	.299
Item 23.	3.35	1.357	-.210	.150	-1.270	.299
Item 24.	2.84	1.437	.267	.150	-1.303	.299
Item 25.	2.97	1.437	.156	.150	-1.341	.299
Item 26.	2.29	1.428	.836	.150	-.674	.299
Item 27.	1.84	1.083	1.503	.150	1.791	.299
Item 28.	2.17	1.282	.943	.150	-.213	.299
Item 29.	2.46	1.327	.681	.150	-.669	.299
Item 30.	3.13	1.481	-.011	.150	-1.469	.299
Item 31.	3.70	1.402	-.607	.150	-1.098	.299
Item 32.	3.29	1.385	-.051	.150	-1.411	.299
Item 33.	2.89	1.425	.180	.150	-1.302	.299
Item 34.	3.35	1.498	-.209	.150	-1.489	.299
Item 35.	2.68	1.487	.505	.150	-1.225	.299
Item 36.	1.84	1.176	1.553	.150	1.577	.299

Note: M=mean; SD=standar deviation

of principals and teachers to administer the scale to the students during school hours. After receiving the institutional approval, the informed consents were sent to parents and/or legal guardians, informing them of the objective of the study and asking their authorization for the participation of their children in this activity. The process of data collection was carried out in a collective way, in the places enabled by the institution, from those minors who had their parents informed consent and who wanted to participate willingly.

3.2 Procedures followed in the data analysis

A descriptive analysis of the data was carried out (mean, standard deviation, skewness, and kurtosis). Given the low number of lost cases, the criteria of imputation consisted on the replacement by the median of the variable. Following, confirmatory psychometric analyses were performed using the software LISREL 8.8 (Jöreskog & Sörbom, 1993). CFA were calculated so as to evaluate the fit and contrast the following models: a) the second-order model, found in the previously mentioned exploratory study, conformed by the factor *adaptive strategies*,

Table 3

Comparison of the fitting of two measuring models of CERQ-k

	χ^2/df	NFI	NNFI	IFI	CFI	AIC	SRMR	RMSEA (IC 90%)
Model 1								
9 factors	1.26	.88	.97	.97	.97	922.38	.080	.032 [.024,.039]
Model 2								
2° order	2.35	.95	.97	.97	.97	867.61	.061	.042 [.038,.046]
2 factors								
5 dimensions								

Note. χ^2/df =Chi-square over degrees of freedom; **NFI**=Normed Fit Index; **NNFI**=Non-Normed Fit Index; **IFI**=Incremental Fit Index; **CFI**=Comparative Fit Index; **AIC**=Akaike Information Criteria; **SRMR**=Standardized Root Mean Residual; **RMSEA**=Root Mean Square Error of Approximation; **IC 90%**=Confidence Intervals for 90%.

Figure 1

Estimated parameters of the model of nine factors

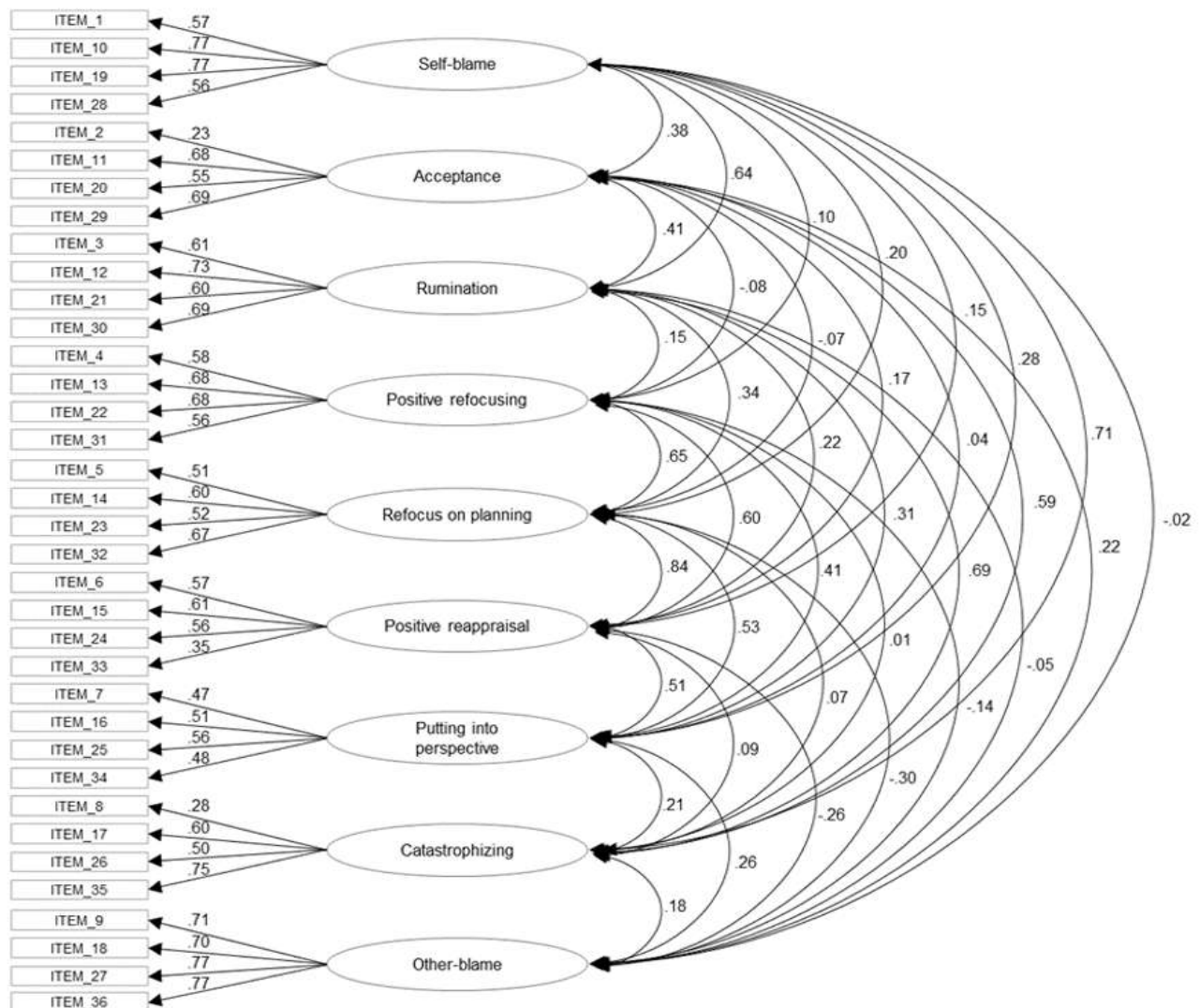
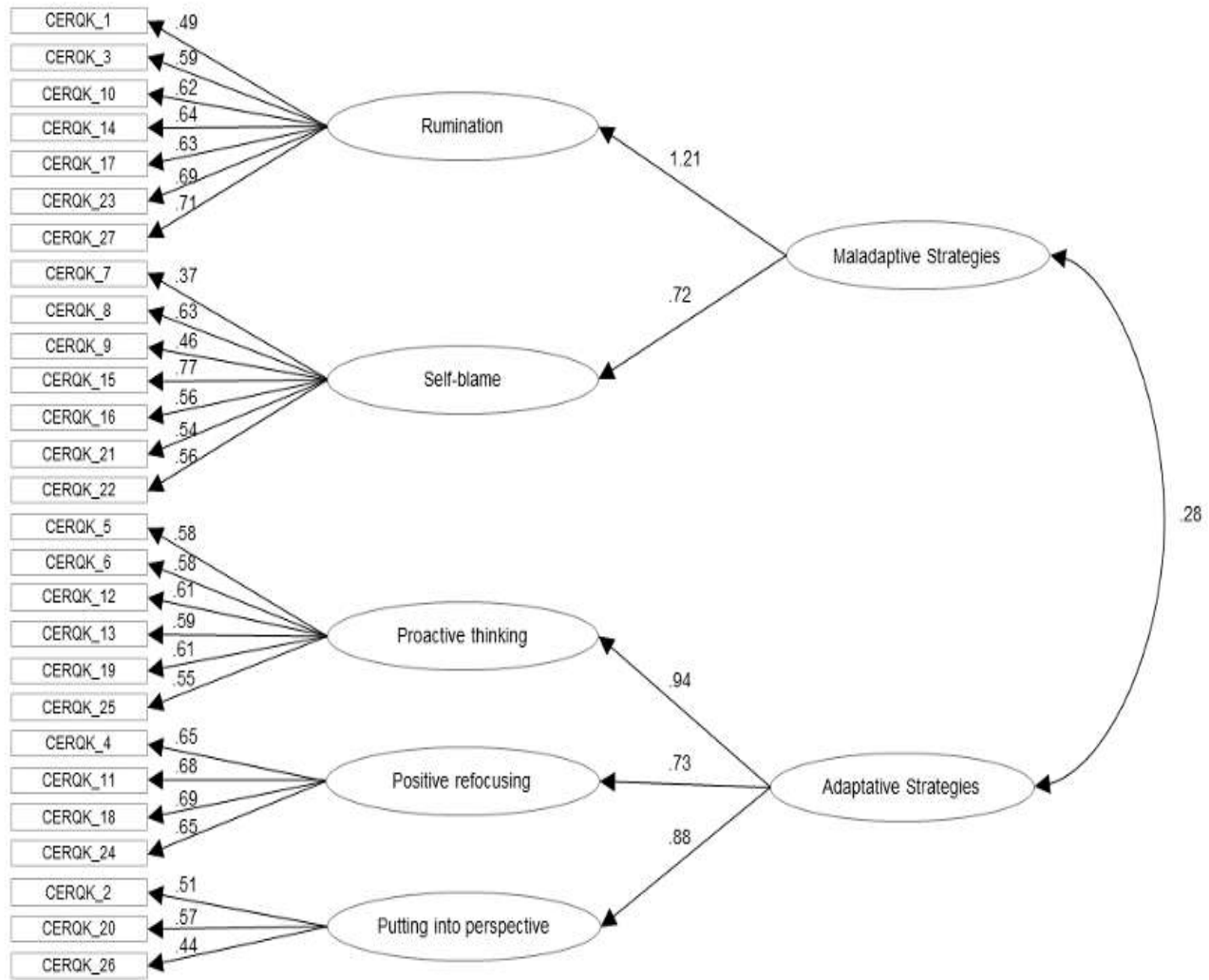


Figure 2

Estimated Parameters of the Second-order Model



which included the dimensions of proactive thinking, positive refocusing, and putting into perspective, and the factor *maladaptive strategies*, with the dimensions of rumination and self-blame; and b) the model of nine factors (self-blame, positive refocusing, other-blame, positive reappraisal, refocus on planning, putting into perspective, catastrophizing, rumination, and acceptance) proposed by the authors of the original version of the CERQ-k.

The CFA were carried out from polychoric matrices, respecting the polytomous nature of the items. The factors were extracted with the method of Maximum Plausibility with robust estimation. Several fit indexes were calculated (Hu & Bentler, 1999; Tanaka, 1993): χ^2/df = Chi-square over degrees of freedom; NFI (normed fit index); NNFI (non-normed fit index); IFI (incremental fit index); CFI (comparative fit index) and RMSEA (root mean square error of approximation); likewise, the SRMR (standardized root mean residual) was included.

A good fit of the model is thought to exist when the goodness of fit indexes is above .90, the RMSEA indexes are below .08, and the SRMR indexes are below .09 (Hu & Bentler, 1999). Hu and Bentler (1999) suggest that the combination of CFI indexes close to .95 and SRMR close to .09 results in one of the lowest additions of type I and type II error rates.

Then, the Composite Reliability was calculated (Hair et al., 2009) for the total scale, as well as for each of the factors that integrate the instrument. The composite reliability index is considered as more adequate than Cronbach's alpha because it does not depend on the number of items associated to each dimension (Vandenberg, 1996). To guarantee reliability, the reference value must be superior to .70.

4. Results

In Table 2, the descriptive statistics for each item are presented. As it can be observed, the skewness and kurtosis values did not surpass the figures of +/- 2, as it is recommended by some authors (Bandalos & Finney, 2010; Muthén & Kaplan, 1985).

In Table 3, it can be observed the values corresponding to the evaluated fit indexes: χ^2/gf , NFI, NNFI, IFI, CFI, AIC, and RMSEA of each model. The results indicate an adequate fit of both models. (See Figures 1 and 2).

Although the two compared models portrayed fit indexes that were generally adequate, model 1, although it showed some error rates that were somehow lower, obtained a NFI value below the recommended ones. On the other hand, the Akaike information criteria (AIC), which offers a comparative measure of the relative quality of different models (Akaike, 1987), was inferior in model 2, indicating, as was hoped for, greater parsimony in the second-order model. The composite reliability for this model was satisfactory, with a CR of .88 both for the dimension of Adaptive Strategies and Maladaptive Strategies. The version of the scale proposed in this work (in English and Spanish) and its correction code are attached in ANNEX.

5. Discussion and Conclusions

The ability to self-regulate emotions is key in childhood and is related to different areas of social functioning. Not only does it help to improve the communication, the stability in interpersonal relationships and the social adjustment in the long term (Jones et al., 2015; Lopes et al., 2005), but it would also be a main aspect in the prevention of clinical symptomatology, since it is considered as a transdiagnostic process that is present in different psychopathological conditions (Aldao et al., 2010; Garnefski et al., 2001; Harvey et al., 2004; Kring & Sloan, 2010), which reinforces the interest in its evaluation for the prevention of problems related to mental health.

As far as the evaluation of the construct from CERQ is concerned, most studies have maintained the structure of nine dimensions (Abdi et al., 2012; Domínguez Lara & Medrano, 2016; Garnefski et al., 2002; Garnefski et al., 2007; Tuna & Bozo, 2012; Zhu et al., 2008). On the other hand, most studies that have compared the nine-dimension model with the second-order model were conducted in adult and adolescent population, with diverse results. Some found that both models were satisfactory (Domínguez-Sánchez et al., 2013; Jermann et al., 2006). In another case, none of the models obtained adequate fits (Medrano et al., 2013); while in the study by Feliu-Soler et al. (2017), the original model was the one that presented a satisfactory fit.

Regarding the evaluation of CERQ in children, only one study performed in Portugal was found (Moreira et al., 2020), and another in China (Liu et al., 2016),

with results indicating a better fit for the original nine-dimension model. Although the authors of the original questionnaire propose that the classification of adaptive and disadaptive strategies be studied (Garnefski et al., 2007), no sufficient pieces of research that verify this structure in child population have been found; thus, in that sense, this study makes a contribution.

Regarding psychometric results obtained by comparing through CFA the original model of nine dimensions proposed by the authors of the CERQ to a second-order model, obtained from the adaptation of the instrument to Argentinean children, carried out in a previous study, it was found that the second-order model proved to be more parsimonious and all the fit rates were within the recommended values. This model was conformed by five dimensions: proactive thinking, positive refocusing, putting into perspective, rumination, and self-blame, which were grouped around two factors of second order, denominated: adaptive strategies, conformed by the first three dimensions, and maladaptive strategies, conformed by the last two. This would give the possibility of studying emotional regulation in a general way, whether adaptive or disadaptive, or in a specific way, by facets.

Linked to these mentioned strategies, Andrés and Zamora M. L. Andrés and Zamora (2018) conducted a Program of Socio-Emotional Learning for children aged 9 to 12, through the implementation of skills to regulate behavior, emotion, and cognition. The planning was based on other socio-emotional learning programs that proved to be highly effective, including the main components highlighted in the promotion of the development of self-regulation. For this, they considered the incorporation of cognitive aspects, such as distraction, positive refocusing, planning of alternative activities, and reevaluation or refocusing of alternative thoughts. Those strategies of cognitive regulation are consistent with the dimensions considered as adaptive in the second-order model confirmed in this study. In the same way, Lasa-Aristu et al. (2019) found that, of all the cognitive strategies of emotional regulation, positive refocusing (distraction), and, more specifically, positive reevaluation (included in this research in the dimension of proactive thinking) were the ones that best discriminated between subjects with a *protective* or *vulnerable* profile, according to the higher or lower frequency of usage of adaptive strategies in each profile, respectively. At the same time, Gómez Pérez and Calleja Bello (2017) mentioned that, although emotional regulation encompasses a broad compound of thoughts and behaviors, and there is a diversity of strategies considered in different scales, the cognitive reevaluation or reappraisal is highlighted as one of the most studied, since it is considered as the most effective to modify the emotion, and not only its expression (Gross & John, 2003), being one the most representative strategies as regards to the adequate regulation of emotions.

Taking the maladaptive strategies of emotional regu-

lation into account, confirmed in the second-order model detailed in this article, several pieces of current research agree in highlighting rumination (Andrés et al., 2016, Andrés et al., 2017, Lasa-Aristu et al., 2019, Melero et al., 2021, Reyes Pérez, 2021, Rice et al., 2017, Schäfer et al., 2017) and self-blame (Andrés, 2016, Del Valle et al., 2018, Garnefski et al., 2007, Melero et al., 2021, Reyes Pérez, 2021) as two of the most frequently used strategies and especially because they are linked to different psychopathologies, such as depression or anxiety.

On the other hand, the version adapted to Argentina, tested in the second-order model, consists of 27 items instead of the 36 of the original version. This reduction is particularly relevant considering that this version is directed to children, who have shorter attention spans and get tired more easily (Lemos, 2013). A version with less items, but with adequate validity and reliability, would favor the administration of the instrument, minimizing the bias of the answer related to the child's tiredness (González-Arratia-López-Fuentes et al., 2019). Likewise, the reliability values obtained for this model were satisfactory, indicating high internal consistency.

In summary, one can conclude that from what was previously exposed, the tested model (27 items, two second-order factors and five dimensions) obtained a good data fit, indicating that the scale works adequately, and is useful to evaluate the main strategies of cognitive emotional regulation linked to protective factors or risk factors, as regards to mental health in late childhood.

Having a valid and reliable instrument to evaluate this construct would allow for the detection of the use of adaptive or maladaptive strategies which make possible the design of psychosocial interventions in childhood. Currently, there is no such instrument in Argentina that specifically measures the cognitive regulation of emotion in children aged 9 through 12; thus, the present study represents a contribution to this line of research, adding to the theoretical clarification of the construct, and providing a valid and reliable instrument in our context. However, certain limitations could be approached in future research. Firstly, although the study was carried out with an appropriate sample size (Hair et al., 2009), the selection of the sample was convenient, drawing from the availability of the participants, which is why it would be appropriate to include representative samples from different regions of the country. Secondly, it would be useful to broaden the current findings by evaluating other evidences of validity of the test from external sources (e.g., discriminant validity, convergent validity, and criteria validity, related to constructs that are linked theoretically). In third place, owing to a limitation of self-report instruments, it is advisable to measure social desirability, since children tend to give answers that are socially acceptable (Lemos, 2005, 2006). For future studies, the use of other types of measures and informants (parents, teachers or significant others) could

be of interest as well, since an external outlook might distinguish certain strategies used by children in specific situations that generate stress and that are not clearly perceived. In fourth place, not knowing the specific situation the minor is going through when answering the questionnaire could affect his or her pattern of response (Garnefski et al., 2007), for which a catchphrase could be used to measure their responses to specific stressors and therefore have a better approach to their current situation. Finally, the comparison between clinical and non-clinical samples would be of interest in order to detect risk factors in children population so as to facilitate the design of interventions to prevent certain pathologies in this age group.

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Appendix

Cognitive Emotional Regulation Questionnaire (CERQ-k)

Name: _____ Grade: _____

Here you will find some thoughts children your age usually have when they face a problem that makes them feel bad.

Please, put a cross (x) in the option that best reflects what you usually think.

Thanks for answering all the items.

	(Almost) Never	Sometimes	Regularly	Frequently	(Almost) Always
1. I think I am guilty.					
2. I think I have to accept what happened.					
3. I think about what happened over and over again.					
4. I think of nicer things.					
5. I wonder if I can do something better.					
6. I think I learned things thanks to what happened to me.					
7. What happened to me is much worse than what happens to others.					
8. I think I was a fool.					
9. That's what happened; there's nothing I can do to change it.					
10. I spend a lot of time thinking about what happened.					
11. I think about nicer things that don't have to do with that.					
12. I think about how I can solve this.					
13. I think what happened to me helped me to grow.					
14. I think about how ugly it was over and over again.					
15. I think everything that happened was my fault.					
16. I think I can't change what happened.					
17. I am always trying to understand why I feel this way.					
18. I think of something nice and not about what happened to me.					
19. I think about how I can change what happened to me.					
20. I think that it is not as bad as other things that could happen.					



21. I think that it is the worst thing that could happen.					
22. I think I caused it.					
23. Many times, I think about what happened.					
24. I think about other good things that happened to me.					
25. I think about what is the best thing I can do.					
26. I think there are worse things in the world.					
27. I think and think about how awful it was.					

Correction key:

Adaptive strategies

Proactive thinking: items 5, 6, 12, 13, 19, 25.

Positive refocusing: items 4, 11, 18, 24.

Putting into perspective: items 2, 20, 26.

Maladaptive strategies

Rumination: items 1, 3, 10, 14, 17, 23, 27

Self-blame: items 7, 8, 9, 15, 16, 21, 22



Anexo

Cuestionario de regulación emocional cognitiva (CERQ-k) en español

Nombre: _____

Grado: _____

A continuación, encontrarás algunos pensamientos que suelen tener los chicos de tu edad cuando tienen algún problema que los hace sentir mal.

Por favor, marca con una cruz (X) en la opción que refleje mejor lo que sueles pensar.

Gracias por contestar a todos los ítems.

	(Casi Nunca)	A veces	Regularmente	Frecuentemente	(Casi Siempre)
1. Pienso que yo tengo la culpa.					
2. Pienso que tengo que aceptar lo que pasó.					
3. Una y otra vez pienso en lo que pasó.					
4. Pienso en cosas más lindas.					
5. Pienso si puedo hacer algo mejor.					
6. Pienso que aprendí cosas gracias a lo que me pasó.					
7. Lo que me pasó a mí es mucho peor que lo que les pasa a los demás.					
8. Pienso que fui tonto.					
9. Eso pasó, no hay nada que pueda hacer para cambiarlo.					
10. Me quedo pensando en lo que pasó por mucho tiempo.					
11. Pienso en cosas más lindas que no tengan que ver con eso.					
12. Pienso en cómo puedo resolver esto.					
13. Pienso que lo que me pasó me sirvió para crecer.					
14. Una y otra vez pienso en lo feo que fue eso.					
15. Pienso que todo pasó por mi culpa.					
16. Pienso que no puedo cambiar lo que pasó.					
17. Todo el tiempo quiero entender por qué me siento de esa manera.					
18. Pienso en algo lindo y no en lo que me pasó.					
19. Pienso en cómo puedo cambiar lo que me pasó.					
20. Pienso que no es tan malo como otras cosas que pueden pasar.					



21. Pienso que es la peor cosa que te puede pasar.					
22. Pienso que yo me lo busqué.					
23. Muchas veces pienso en lo que pasó.					
24. Pienso en otras cosas buenas que me pasaron.					
25. Pienso en qué es lo mejor que puedo hacer.					
26. Creo que hay cosas peores en el mundo.					
27. Pienso y pienso en lo horrible que fue lo que pasó.					

Clave de corrección:

Estrategias adaptativas

Pensamiento proactivo: Ítems 5, 6, 12, 13, 19, 25.

Distracción: Ítems 4, 11, 18, 24.

Perspectiva: Ítems 2, 20, 26.

Estrategias Desadaptativas

Rumiación: Ítems 1, 3, 10, 14, 17, 23, 27.

Autoinculpación: Ítems 7, 8, 9, 15, 16, 21, 22.