

## Cross-Cultural Adaptation of the Children's Emotion Regulation Processes Survey (CERP) in Chilean Preschoolers

Paulina Reyes Rodriguez<sup>\*, 1, 2</sup>

Orcid.org/0000-0003-4400-9210

Felix Cova Solar<sup>2</sup>

Orcid.org/0000-0002-9290-6875

Claudio Bustos Navarrete<sup>2</sup>

Orcid.org/0000-0003-3478-9858

---

<sup>1</sup>Universitat de Barcelona, Barcelona, España  
<sup>2</sup>Universidad de Concepción, Concepción, Chile

### Abstract

Emotion regulation is an important aspect for the adaptation of human beings that influences their development and mental health. In actuality, it is an important challenge to have culturally valid instruments that allow to evaluate this construct. In this study, an analysis of the psychometric properties of the Children's Emotion Regulation Processes Survey (CERP) in a sample of Chilean preschoolers is presented. CERP is a third-party report questionnaire that assesses the strategies of emotion regulation in children, providing a vision based on development. The instrument was applied to mothers and fathers of 483 children, between the ages of 4 and 6 that attended preschool. Factorial structure, internal consistency and the relation with the Child Behavior Checklist (CBCL) as indicator of convergent validity was analyzed. The results showed a four factor structure, coherent with the empirical evidence. Also, all of the factors presented adequate reliability indexes and correlation with the internalization and externalization scales of CBCL. It is concluded that CERP exhibits positive reliability and validity indicators to be used in this population.

**Keywords:** Children's Emotion Regulation Processes Survey, preschoolers, psychometric properties.

---

\* Mailing address: Universitat de Barcelona, Facultat de Psicologia, Grup de Recerca en Victimització Infantil i Adolescent, Pg. de la Vall d'Hebron, 171, Barcelona, España 08035. E-mail: paulinareyesr@gmail.com, fecova@udec.cl and clbustos@udec.cl

Support: Estudios de Postgrado financiados por Comisión Nacional de Investigación Científica y Tecnológica, Chile. CONICYT-PCHA/Doctorado Nacional/21130876-2013; Trabajo financiado por Fondo Interno de Dirección de Investigación, Universidad del Desarrollo.

## **Adaptación Transcultural del Cuestionario de Procesos de Regulación Emocional (CERP) en una Muestra de Preescolares Chilenos**

### **Resumen**

La regulación emocional es un aspecto de relevancia para la adaptación de los individuos que influye en su desarrollo y salud mental. Actualmente, es un desafío contar con instrumentos válidos culturalmente para evaluar este constructo. En este estudio, se presenta el análisis de las propiedades psicométricas del Cuestionario de Procesos de Regulación Emocional Infantil (CERP) en una muestra de preescolares chilenos. El CERP es un cuestionario de reporte de terceros que evalúa las estrategias de regulación emocional en niños/as, entregando una visión basada en el desarrollo. Se aplicó el instrumento a padres y madres de 483 niños/as de edades entre 4 y 6 años que cursaban educación preescolar. Se analizó la estructura factorial, consistencia interna y relación con el Inventario de Conductas Infantiles (CBCL) como indicador de validez convergente. Los resultados evidenciaron una estructura de cuatro factores, coherentes con la evidencia empírica. Además, todos los factores presentaron adecuados índices de confiabilidad y correlaciones con las escalas de internalización y externalización del CBCL. Se concluye que el CERP muestra indicadores de confiabilidad y validez positivos para ser usado en esta población.

**Palabras claves:** Cuestionario de procesos de regulación emocional infantil, preescolares, propiedades psicométricas.

## **Adaptação Transcultural do Questionário de Processos de Regulação Emocional (CERP) em Pré-Escolares Chilenos**

### **Resumo**

A regulação emocional é um aspecto de relevância para a adaptação dos indivíduos que influencia em seu desenvolvimento e saúde mental. Na atualidade, um desafio importante é contar com instrumentos válidos culturalmente que permitam avaliar este constructo. Neste estudo se apresenta a análise das propriedades psicométricas do Questionário de Processos de Regulação Emocional Infantil (CERP) em uma amostra de pré-escolares chilenos. O CERP é um questionário de relatórios de terceiros que avaliam estratégias de regulação emocional em crianças, entregando uma visão baseada no desenvolvimento. O instrumento foi aplicado a pais e mães de 483 crianças, entre 4 e 6 anos que cursavam a educação pré-escolar. Foi analisada a estrutura fatorial, consistência interna e o relacionamento com o Inventario de Condutas Infantis (CBCL) como indicador de validade convergente. Os resultados evidenciaram uma estrutura de quatro fatores, coerentes com a evidencia empírica. Além disso, todos os fatores apresentaram índices adequados de confiabilidade e correlações com as escalas de internalização e terceirização do CBCL. Se conclui que o CERP mostra indicadores de confiabilidade e validez positivos para serem usados nesta população.

**Palavras chaves:** Questionário de processos de regulação emocional infantil, pré-escolares, propriedades psicométricas.

The field of the regulation of emotional states has captivated the interest of numerous researchers in the last twenty years. In particular, the study of emotion regulation in children has increased considerably, amassing

evidence relating to processes, development and moderating variables (Gross, 2015; Thompson, 2011a).

Emotion regulation (ER) is understood as “The extrinsic and intrinsic processes responsible

for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (Thompson, 1994, pp. 27-28). Dynamic processes of management and alteration of the emotional process are considered that can affect any of its stages, and cushion, suppress, intensify or maintain the emotions experienced, being able to generate changes on a physiological, cognitive, motivational and behavioral level or in the social environment according to the goals of the individual (Gratz, Weiss, & Tull 2015; Gross, 2014; Thompson, 2011b).

According to Gross (2014, 2015), ER has three basic components: the goals of ER, the strategies of ER and the result or consequences of using these determined strategies. The strategies of ER, that are understood as what people do to respond to their goals, consist of a variety of actions that can interfere in any of the stages of the emotional process. They have been described in adults as the choice of the situation, modification of the situation, use of attention, cognitive changes and the modulation of the emotional response. These strategies are directly related with the modulation of the emotional experience, influencing in the ability to respond in an adaptive and flexible manner to emotional experiences according to social norms (Dixon-Gordon, Aldao, & De los Reyes, 2015; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Tamir, 2016).

The ER construct has been related to other affective and behavioral processes, such as coping, as long as both are given a behavioral regulation, voluntary and intrinsic in response to the emotions. Coping is considered as "conscious and volitional efforts to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances" (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001, p. 89), therefore, it corresponds to a specific type of regulation of the emotions when faced with stressful events or circumstances. For its part, ER is a broad process that occurs under stressful and non-stressful circumstances, just like extrinsic and intrinsic

mechanisms, voluntary and automatic for emotional management (Compas et al., 2014; Gross, 2015).

In the preschool period, ER acquires special relevance given that children gain independence, control and an identity separate from that of the caregiver, which exposes them to greater instances that generate frustration, demanding greater regulatory skills (Calkins, 2007; Calkins & Perry, 2016; Thompson, Virmani, Waters, Raikes, & Meyer, 2013). The development of diverse physiological, cognitive and psychological systems, allows preschoolers to gradually organize and control their behavior in favor of the alteration of the emotional process such as identifying strategies that result as appropriate and inappropriate for the regulation of negative emotions (Eisenberg & Morris, 2003). This allows them to go from an extrinsic regulation, mediated by the parents, to an intrinsic regulation, where they are capable of deploying for themselves, actions to manage their emotions that are consistent with the growing awareness of their impact on the environment and their capacity to act in it (Cole, Dennis, Smith-Simon, & Cohen, 2009; Feldman, 2015).

The new ways of regulation that preschoolers develop are increasingly more complex, sophisticated, planned and organized. If in the first two years of life the predominance is on strategies based on self-soothing, the search for soothing in others and the use of transitional objects (Calkins & Perry, 2016; Grolnick, Bridges, & Connell, 1996), then beginning at the age of three strategies such as the active use of distraction take hold (Eisenberg & Morris, 2003; Morris et al., 2011; Stansbury & Signman, 2000; Supplee, Skuban, Trentacosta, Shaw, & Stoltz, 2011), instrumental strategies that look to eliminate or modify the triggering situation (Feldman, 2015; Stansbury & Signman, 2000; Supplee et al., 2011) and, toward the end of the period, cognitive strategies such as positive thinking and the resignification of a situation (Calkins, 2007; Eisenberg & Morris, 2003; Morris et al., 2011; Sala, Pons, &

Molina, 2014; Stansbury & Sigman, 2000). The development of ER strategies during this stage of development have been related with the mental health of children especially with the presence of maladaptive behaviors, showing that the sub-regulation of anger and frustration, just as the use of rudimentary ER strategies, are related with the presence of externalizing behaviors; while over-regulation of sadness and anxiety would be linked with internalizing behaviors (Calkins & Perry, 2016; Eastabrook, Flynn, & Hollenstein, 2013; Halligan et al., 2013; Sanders, Zeman, Poon, & Miller, 2013).

The assessment of emotion regulation in infancy and in the preschool stage is a topic of special relevance although it presents challenges that are difficult to resolve. Concordance exists in the need to have varied assessment methods that are ecologically valid, sensitive to cultural differences and to the specificities of these stages of development (Adrian, Zeman, & Veits, 2011; Darling-Churchill, & Lippman, 2016; Suveg & Zeman, 2011; Thompson, 2011a).

For preschoolers, the methods most often used are observational and third-party reports, specifically of parents and educators (Adrian et al., 2011; Karreman, van Tuijl, van Aken, & Deković, 2006). While these have shown the advantage of allowing for reliable and economical access to data, among their limitations informant bias dependence is found, which makes the consideration of multiple informants in the analysis of the reports necessary (Darling-Churchill, & Lippman, 2016; Suveg & Zeman, 2011; Thompson, 2011a). In contrast to what happens in other evolutionary periods, such as the school stage or adolescence, other assessment methodologies such as self-reports, are used less in preschoolers (Adrian et al., 2011).

The majority of third-party report instruments generated for ER assessment in preschoolers have been studied with samples of mothers and assess emotion regulation in terms of lability/negativity and levels of emotion regulation (for example, The Emotion Regulation Checklist; Shields, & Cicchetti, 1997), without specifying the strategies used. In Latin American

population, validated questionnaires to assess emotion regulation are scarce, limiting the possibilities of conducting cultural analyses. The Children's Emotion Regulation Processes Survey (CERP) is the adaptation carried out by Meyer, Raikes, Virmani, Waters, and Thompson (2014) of the Coping Scale for Children and Youth created by Bernzweig, Eisenberg, and Fabes (1993), with the objective of assessing the answers of children between the ages of 5 and 8 when faced with everyday stressful situations according to the report of their mothers or caregivers. Four hypothetical scenarios were presented that are answered on a 7-point Likert scale (1=not possible; 7= extremely possible) according to the way in which the children would respond before eight response categories: (a) problem-solving, (b) aggressive behaviors, (c) use of distraction, (d) avoidance, (e) dominant venting, (f) submissive venting, (g) seek support to resolve the problem, (h) seek emotional support, (i) positive cognitive restructuring, (j) "does nothing".

Given the close relation between the constructs of coping and emotion regulation (Compas et al., 2017; Compas et al., 2014), this questionnaire was adapted to assess ER strategies in children. Eisenberg et al. (1993) used this instrument with six vignettes of situations that trigger negative emotions, proposing six dimensions of response corresponding to ER strategies. The factorial analysis carried out with a sample of educators and mothers found that the dimensions were grouped into two factors: avoidance strategies vs. expression of the emotion and constructive strategies.

On the adaptation of this version of the instrument for children 4 to 5 years of age (Meyer et al., 2014) the authors presented mothers the six scenarios about everyday conflicts centered on the emotions of sadness and anger proposed in the original instrument, and then added two new ones. Each one featured a list of potential response strategies in a six-point scale that, after being subjected to a factorial analysis, were distributed into four factors: (a) attention-focused strategies (for example: think about something

else in order to forget), (b) dominant venting (for example: hit or yell at an adult to get what they want), (c) submissive venting (for example: cry to liberate their repressed or frustrated feelings) and (d) constructive strategies which include problem-focused or emotion-focused strategies (for example: approach an adult to talk about why they are angry or to seek emotional support).

Having third-party report instruments for the assessment of emotion regulation strategies in preschoolers, appropriate to distinct cultural contexts and relevant to the report of diverse informants is very important in order to resolve the current challenges in the study of emotion regulation. Therefore, this work seeks to analyze the psychometric properties of the cross-cultural adaptation of CERP for a sample of Chilean preschoolers. Specifically, its factorial structure, internal consistency and the relation of emotion regulation with maladaptive behaviors as indicator of convergent validity is evaluated.

## **Method**

### ***Participants***

This sample included 483 Chilean preschoolers, recruited through intentional sampling. It was considered as inclusion criteria: 1. that the child be between the ages of 4 and 6; 2. that one or both parents live in a stable manner with the child in the last 2 years; 3. that the parents consented to participate informedly in the study. Considered as exclusion criteria were: 1. children diagnosed with special education needs by their education establishment; 2. children in the care of grandparents or other caregiver.

In relation to the 483 cases, we obtained 69.9% of questionnaires answered only by the mother, 8.2% answered only by the father and 21.7% answered by the mother and father. Of the 443 questionnaires answered by the mothers, 4 were eliminated due to incomplete information (less than 88 items answered). In regards to the education level of the parents, 69.8% had higher education, 24.1% had secondary education and 6.1% had elementary education. About civil sta-

tus, 67.5% of the parents were married, 32.3% single and 0.3% widowed.

The age range of the children was between the ages of 4 and 6 ( $M= 4.9$ ,  $SD= 0.5$ ). The percentage of woman was 51.1% and all attended preschool, 38.9% Pre-Kindergarten and 61.1% Kindergarten. Regarding the dependency of educational centers, 17.8% of the participants belonged to municipal centers; 47.2% belonged to subsidized private centers and 35% belonged to privately paid education centers.

### ***Instruments***

**Children's Emotion Regulation Processes Survey (CERP; Meyer et al., 2014 Adaptation).** Questionnaire that consists of six vignettes with 10 response options that evaluate the type of response that children between the ages of 5 and 8 exhibit when faced with everyday situations that generate sadness and frustration (for example, "When your child is mad because another child took their toy and won't give it back, how likely is your child to respond in the following way"). Each option represents a type of response that the child can deploy. Eisenberg et al. (1993) assessed the psychometric properties of this instrument, proposing six dimensions of response: (a) distraction-avoidance ( $\alpha= 0.61$ ), (b) aggression ( $\alpha= 0.88$ ), (c) expression of emotion ( $\alpha= 0.64$ ), (d) seek emotional support ( $\alpha= 0.56$ ). The last two dimensions are made up of only one item: (e) instrumental coping (perform a constructive action to improve the stressful situation) and (f) cognitive restructuring (try to think of the stressful situation in a positive way).

The Meyer et al. (2014) adaptation, for preschoolers ages 4 and 5, was based on a sample of 73 mothers. In this adaptation two vignettes of situations that evoke negative emotions in children were added, some items were simplified and the "cognitive restructuring" category was eliminated. The 8 vignettes give 12 response options that group 3 dimensions of emotion regulation strategies, each one made up of four items that exhibited adequate levels of internal consistency: (a) constructive strategies ( $\alpha=0.70$ ), (b) attention-focused ( $\alpha=0.78$ )

dominant or submissive venting ( $\alpha=0.93$  and  $0.81$ , respectively). The parents or parental figures must indicate on a 7-point Likert scale (1=not at all likely, 4= somewhat likely, 7= very likely), the frequency in which their child would respond in that manner when faced with the situation described.

For this study, the scale was translated into Spanish and adapted to Chilean context. For this, two bilingual translators who are experts in this field of study, generated the initial versions in Spanish, which were synthesized by the main researcher and a third expert translator, generating a version of the instrument that was then subject to the retranslation process. This was used in a pilot study with 8 mothers and fathers whose children belonged to different types of educational establishments, where an adequate understanding of the items was observed. The item “does nothing” was not considered in the analysis due to showing little theoretical and empirical evidence. In this sample, the CERP showed adequate levels of internal consistency in all of its dimensions ( $\alpha= 0.90-0.95$ ), superior to that found by Meyer et al. (2014).

**Child Behavior Checklist (CBCL/1½-5;** Achenbach & Rescola, 2000). Scale of 100 items with three Likert-type response options (0 = not true; 1 = somewhat or sometimes true; 2 = very true or often true) that evaluates the presence of maladaptive behaviors in preschoolers reported by the parents or parental figures within the last two months. This instrument has been translated into different languages including Spanish (Lecannelier et al., 2014). Its psychometric properties have been demonstrated in diverse studies, that have included Chilean samples with adequate levels of reliability (Cova et al., 2016; Lecannelier et al., 2014). In this study the internalization ( $\alpha= 0.84$ ) and externalization ( $\alpha= 0.88$ ) scales were used, together with the syndrome scales of Affective Problems ( $\alpha= 0.77$ ), Anxiety Problems ( $\alpha= 0.72$ ), Somatic Complaints ( $\alpha= 0.63$ ), Withdrawn/Depressed and/or Thought Problems ( $\alpha= 0.74$ ), Attention Problems ( $\alpha= 0.56$ ) and Aggressive Behaviors ( $\alpha= 0.87$ ).

## *Procedure*

To obtain this sample, different educational centers from the province of Concepción were contacted that were intentionally selected considering their type of institutional unit (municipal, subsidized and privately paid). After the authorization from the management of the educational establishment, the application was carried out in a parent’s meeting where the parents were invited to participate. Those that accepted signed the informed consent and answered the questions at that moment in approximately 30 minutes time. Two evaluators stayed the entire time of the application to answer any participant’s questions. The ethical aspects associated to the study were approved by the Ethics Committee of the University of Development.

## *Data Analysis*

Taking into consideration the existence of a prior four-factor structure proposed by Meyer et al. (2014), a confirmatory factor analysis (CFA) was carried out using Procrustes rotation and Weighted Least Squares as a method of extraction; usually CFA based on SEM is used, but the use of Procrustes allows to obtain a solution as similar as possible to the original, allowing for the load in other factors without the need to conduct a specification search. The solution for mothers and fathers was analyzed, evaluating its similarity with Tucker’s Congruence Coefficient, considering as indicator of congruence coefficients greater than 0.90 (Cheung, Cheung, Leung, Ward, & Leong, 2003; McCrae, Zonderman, Bond, & Paunonen, 1996). Those items with loads lower than 0.4 (Williams, Brown, & Onsmann, 2010), crossed loads and loads different to the ones theoretically proposed were eliminated, in order to propose a common solution for mothers and fathers that would maintain the theoretical criteria. Secondly, to contrast Procrustes rotation solution, an exploratory factor analysis (EFA) was carried out applying the Principal-Axis method and oblique rotation taking into consideration the existence of the factorial structure provided by Procrustes.

The consistency of both solutions was evaluated through Tucker's congruence coefficient.

The assessment of the internal consistency was conducted using Cronbach's alpha reliability coefficient, considering as criteria an  $\alpha > 0.7$  to assume an acceptable reliability (Tabachnick & Fidell, 2007). To assess the relation between the scores of the mothers and fathers, as well as to assess the relation of CERP with maladaptive behaviors with CBCL, a correlational analysis was carried out by way of the Pearson coefficient. All of the statistical analyses were done with the R statistics package, version 3.1.

## Results

The analysis began by evaluating its relevance, thereby obtaining a statistically significant Bartlett's test for sphericity, for mothers  $\chi^2(3828) = 23145$ ;  $p < .001$  and for fathers  $\chi^2(3828) = 11149,9$ ;  $p < .001$ , with the Kaiser-Meyer-Olkin (KMO) Test for Sampling Adequacy of 0.88 for the mothers and 0.69 for the fathers, indicating the relevance of carrying out a factorial analysis.

Initially, the distribution of the items in the four factors proposed by Meyer et al. (2014) through CFA using a configuration matrix with Procrustes rotation was evaluated. In the mothers, all of the items corresponded with the theoretically proposed factor presenting loads greater than 0.4, with the exception of item 1h ("When your child is mad because they can't have what they want, how likely is it that he/she walks away from the situation?"). In the fathers, almost all the items load above 0.4 in the factor that theoretically corresponds to them according to Meyer et al., except for two items that correspond to the original factor 4: the item 6g ("When your child is sad because a fun family activity that was planned is cancelled, how likely is it that he/she?; Cry so that the activity is rescheduled:), what saturated in factor 3 and item 8g ("When your child is sad because other children made fun of him/her how likely is it that he/she?: Cry for an adult to intervene so that they don't make fun of him/her") had a cross loading in factor 1.

When comparing the solutions of both parents, it was found that the explained variance is 38% for the mothers and 45% for the fathers. The Tucker's congruence coefficient for factor 1 and 2 is 0.97, for factor 3 it is 0.95, and for factor 4 it is 0.90, indicating that the solution for factor 1, 2 and 3 is practically identical for mothers and fathers, but not so for factor 4. Therefore, and respecting the theoretical proposal of the instrument, it is decided to eliminate the two items of factor 4 that present crossed loadings. After eliminating these items, the Tucker's coefficient reaches 0.96 for factor 3 and 0.91 for factor 4, maintaining the values of factor 1 and 2.

For this new set of items, a new CFA with Procrustes rotation joining the samples of mothers and fathers was carried out. A statistically significant Bartlett's test for sphericity was obtained, with an  $\chi^2(3828) = 30939,9$ ;  $p < .001$ ; and a Kaiser-Meyer-Olkin (KMO) test for sampling adequacy of 0.89, which confirmed the relevance of the factorial analysis for the joint sample.

Following the same procedure used for the samples of mothers and fathers separately, the distribution of the items in the four factors originally proposed by the authors was assessed. There were no crossed loadings and all of the items showed loadings greater than 0.4 in the theoretically proposed factor, with the exception of item 1h which was eliminated. Factor 1 (Focus on attention) explains the 12% of the variance, factor 2 (Constructive strategies) the 11% of the variance and factor 4 (dominant venting) a 10% of the variance and factor 4 (Submissive venting) a 7% of the variance; the solution explains 39% of the total variance of the joint sample of mothers and fathers.

With the joint sample an EFA was later carried out applying the extraction method of principal-axis and oblimin rotation for the samples of mothers and fathers. The results showed a distribution of items in the same factors described in the prior analysis, with loadings almost identical to the ones obtained with Procrustes rotation (Table 1). The Tucker's congruence coefficient was 1 in all of the factors, which indicates that both solutions are practically identical.

**Table 1**  
**Factors Identified in CERP: Items and Range of Factor Loadings**

Factor	Items	Factor loadings range CFA	Factor loadings range EFA
Factor 1: Attention focused	1a, 1c, 1f, 1h 2a, 2c, 2f, 2h, 3a, 3c, 3f, 3h, 4a, 4c, 4f, 4h, 5a, 5c, 5f, 5h, 6a, 6c, 6f, 6h, 7a, 7c, 7f, 7h, 8a, 8c, 8f, 8h.	0.46 - 0.70	0.46 - 0.70
Factor 2: Constructive Strategies	1d, 1i, 1k, 2d, 2i, 2k, 3d, 3i, 3k, 4d, 4i, 4k, 5d, 5i, 5k, 6d, 6i, 6k, 7d, 7i, 7k, 8i, 8k.	0.47 - 0.75	0.46 - 0.74
Factor 3: Dominant venting	1e, 1j, 2e, 2j, 3e, 3j, 4e, 4j, 5e, 5j, 5e, 5j, 6e, 6j, 7e, 7j, 8e, 8j.	0.60 - 0.77	0.60 - 0.77
Factor 4: Submissive venting	1b, 1g, 2b, 2g, 3b, 3g, 4b, 4g, 5b, 5g, 5b, 5g, 6b, 7b, 7g, 8b, 8g.	0.45 - 0.72	0.44 - 0.71

Thus, the final scale was made up of 85 items distributed in 4 factors that presented adequate levels of internal consistency (Table 2). Regarding the correlation between the score

of the mothers and fathers, a correlation was found of  $r=0.29$  for the attention-focused factor,  $r=0.47$  for the constructive strategies factor,  $r=0.5$  for the dominant venting factor and  $r=0.51$  for the submissive venting factor.

**Table 2**  
**Descriptive Statistics and Cronbach's Alpha of the CERP Factors**

Factor	Mean	Deviation	Alpha	Correlation between items and corrected sum
Factor 1: Attention focused	3.7	0.98	0.94	0.67
Factor 2: Constructive Strategies	4.6	1.17	0.94	0.72
Factor 3: Dominant venting	1.9	1.09	0.93	0.77
Factor 4: Submissive venting	3.8	1.28	0.90	0.72

Lastly, the correlation between the CERP and CBCL factors was analyzed, showing direct and statistically significant correlations between all of the CBCL scales and the dominant and submissive strategies. Likewise, a direct and

statistically significant correlation between constructive strategies and emotional reactivity was found. For its part, the attention-focused strategies showed a significant and inverse correlation with the aggressive behavior and internalization scale (Table 3).



**Table 3**  
**Pearson's Correlations between CERP and CBCL Factors**

	Attention focused	Constructive strategies	Dominant venting	Submissive venting
Emotional Reactivity	0	0.1*	0.28**	0.23**
Anxiety Depressed	0	0.03	0.17**	0.25**
Somatic Problems	-0.06	0.02	0.12**	0.13**
Withdrawn Depressed	-0.01	-0.03	0.26**	0.2**
Attention Problems	0.03	0.08	0.25**	0.24**
Aggressive Behavior	-0.16**	0.06	0.45**	0.34**
Internalization	-0.02	0.04	0.25**	0.24**
Externalization	-0.13**	0.07	0.44**	0.34**

Note. N= 555.

\* $p < .05$ . \*\* $p < .01$ .

## Discussion

Emotion regulation is an important aspect to consider in child development, as it is closely related to mental health and children's adaptation to the contexts in which they develop (Calkins & Perry, 2016; Cole & Deater-Deckard, 2009; Feldman, 2015). In specific, assessing the strategies of emotion regulation that children exhibit when faced with situations that evoke negative emotions, allowing to understand the repertoire and the progression of skills with which to tackle the challenges of daily life, is an important aspect on both a clinical and research level. Having instruments that evaluate the strategies of emotion regulation in infants through their caregiver's report, can allow to opportunely identify children with difficulties in the regulation of their emotional states.

The results obtained in this study contribute evidence of construct validity and reliability of The Children's Emotion Regulation Processes Survey (CERP) in Chilean preschoolers beginning with the report from their mothers and fathers. It was found that the instrument exhibits a four factor structure similar to the one proposed in the adaptation of Meyer et al.

(2014), which is consistent with that described in the literature about regulation strategies in this age range (Morris et al., 2011; Sala et al., 2014; Stansbury & Signman, 2000).

The analysis of the factorial structure showed that Factor 1, corresponding to the use of attention-based strategies, Factor 2 use of constructive strategies and Factor 3 use of dominant venting (by way of aggressive behaviors), exhibited in all items loadings greater than 0.4 in the proposed solution for mothers and fathers, also showing, that minimal differences exist between both. For its part, in factor 4, corresponding to the use of regulation strategies based on submissive venting (by way of crying and disarming), differences were found between the solutions of both parents: the mothers exhibited a solution identical to the one proposed by Meyer et al. (2014) and the fathers exhibited two items that behaved differently. It is not clear if this disparity can be attributed to the differences in the understanding and socialization of the emotions between mothers and fathers, which has been documented in various studies (Chaplin, Cole, & Zahn-Waxler, 2005; Karreman, van Tuijl, van Aken, & Deković, 2008). It is not possible to contrast

these results with the studies of Bernzweig et al. (1993) and Meyer et al. (2014), given that in them the sample was only comprised of mothers.

Taking into consideration and in view of proposing a common solution to be used in the report of mothers and fathers, both items were eliminated, however, the values of the Tucker's coefficient did not improve substantially, showing that the solution is similar in mothers and fathers, but would present some differences.

The factorial analysis carried out for the joint samples of mothers and fathers, with 85 items, showed the same four factors proposed in the Meyer et al. (2014) study with loadings above 0.4 in all of the items, contributing validity to this factorial structure.

Cronbach's alpha of each dimension was adequate, demonstrating that each factor has sufficient internal consistency. Regarding the relation between the reports of mothers and fathers, a behavioral differentiation was found among the factors: in the dimensions of submissive and dominant venting and constructive strategies a moderate relation is observed, that realizes that although the vision of the phenomenon is similar, some differences exist according to the relation of the informant. For its part, the attention-focused dimension exhibited a low ratio between the report of mothers and fathers, demonstrating differences between both informants. This data is consistent with the meta-analytic studies that have analyzed the concordance in the reports of the informants that belong to a same role (such as mothers and fathers) for the behaviors of children (De los Reyes et al., 2015), however it is necessary to continue evaluating the behavior of the attention-focused dimension to provide greater depth to the instrument.

With regards to the relation of the distinct dimensions of CERP with the scales of CBCL, a positive and significant relation was found between the strategies of emotion regulation based on submissive and dominant venting and all of the scales of CBCL. At the same time, the data showed a negative and significant relation between the strategies of adaptive or age-appropriate regulations (distraction and constructive strategies) with the externalization

and aggressive behavior scales. This shows coherence with what was stated in other studies that have linked the difficulties in emotion regulation and the use of instrumental strategies of emotion regulation (behaviors that look to eliminate the source of frustration) or expression of emotion with mental health issues, both internalized and externalized (Morris et al., 2011; Sanders et al., 2013; Suplee et al., 2011). The constructive strategies, as is expected, did not show relation with externalized nor internalized behaviors except for one very low relation with the emotion reactivity scale.

## Conclusions

The results obtained in this adaptation of CERP to evaluate the strategies of emotion regulation in preschoolers contributes evidence of its validity and reliability, suggesting that its use is suitable in Chilean population. This study is thus a contribution to the evaluation of emotion regulation in children, where it is necessary to have diverse methods of assessment. In regards to the reports, it is of interest that they take into consideration fathers as much as mothers.

It is relevant to keep in mind, however, that this study presents some limitations. According to what was observed in the application of the instrument, in municipal schools, with parents with a lower educational and cultural level, the instrument showed some difficulties in being understood and, also, in all of the schools, it was tiring due to its length. Another limitation is related with that the entire sample belongs to the eighth region of the country, making it difficult to generalize the results for other Chilean regions.

In regards to the above, it would be of interest to explore adaptations of the instrument to be applied in other contexts, regions and the development of a briefer version. Future studies should try the factorial structure of this instrument in other populations, as well as incorporate the report from the nursery school teachers in the evaluation of the child, analyzing the relevance of the scale and its form of analysis. It is necessary to deepen the understanding and report of this phenomenon in

mothers and fathers, to explore the need to have differentiated forms of analysis between both. Convergence studies with other strategies of data collection (for example: observation) would also be relevant, as well as analyzing the predictive validity of these distinct measures in relation to diverse dimensions of child development.

## References

- Achenbach, T. M., & Rescola L. A. (2000). *Manual for the ASEBA Preschool Forms & Profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.
- Adrian, M., Zeman, J., & Veits, G. (2011). Methodological implications of the affect revolution: A 35-year review of emotion regulation assessment in children. *Journal of Experimental Child Psychology, 110*(2), 171-197. doi: 10.1016/j.jecp.2011.03.009
- Bernzweig, J., Eisenberg, N., & Fabes, R. A. (1993). Children's coping in self- and other-relevant contexts. *Journal of Experimental Child Psychology, 55*(2), 208-226. doi: 10.1006/jecp.1993.1012
- Calkins, S. D. (2007). The emergence of self-regulation: Biological and behavioral control mechanisms supporting toddler competencies. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 261-284). New York: Guilford Press.
- Calkins, S. D., & Perry, N. B. (2016). The Development of Emotion Regulation: Implications for child adjustment. *Developmental Psychopathology, 3*(6), 1-56. doi: 10.1002/9781119125556.devpsy306
- Cole, P. M., & Deater-Deckard, K. (2009). Emotion regulation, risk, and psychopathology. *Journal of Child Psychology and Psychiatry, 50*(11), 1327-1330. doi: 10.1111/j.1469-7610.2009.02180.x
- Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2009). Preschoolers' emotion regulation strategy understanding: Relations with emotion socialization and child self-regulation. *Social Development, 18*(2), 324-352. doi: 10.1111/j.1467-9507.2008.00503.x
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*(1), 87-127. doi: 10.1037/0033-2909.127.1.87
- Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., ...Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological Bulletin, 143*(9), 939-991. <http://dx.doi.org/10.1037/bul0000110>
- Compas, B. E., Jaser, S. S., Dunbar, J. P., Watson, K. H., Bettis, A. H., Gruhn, M. A., & Williams, E. K. (2014). Coping and emotion regulation from childhood to early adulthood: Points of convergence and divergence. *Australian Journal of Psychology, 66*(2), 71-81. <http://doi.org/10.1111/ajpy.12043>
- Cova, F., Bustos, C., Rincón, P., Grandón, P., Saldivia, S., & Inostroza, C. (2016). Inventario de Conductas Infantiles en preescolares: propiedades psicométricas del Inventario de Conductas Infantiles (CBCL/1.5-5) y del Informe del Cuidador/Educador (C-TRF) en Preescolares Chilenos [The Child Behavior Checklist in preschoolers: Psychometric properties of the Child Behavior Checklist (CBCL/1.5-5) and of the Caregiver-Teacher Report Form (C-TRF) in Chilean Preschoolers]. *Terapia Psicológica, 34*(3), 191-198. doi: 10.4067/S0718-48082016000300003
- Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion, 5*(1), 80. doi: 10.1037/1528-3542.5.1.80
- Cheung, F., Cheung, S., Leung, K., Ward, C., & Leong, F. (2003). The English version of the Chinese Personality Inventory. *Journal of Cross-Cultural Psychology, 34*, 433-452. doi: 10.1177/0022022103034004004
- Darling-Churchill, K. E., & Lippman, L. (2016). Early childhood social and emotional development: Advancing the field of measurement. *Journal of Applied Developmental Psychology, 45*, 1-7. doi: 10.1016/j.appdev.2016.02.002
- De Los Reyes, A., Augenstein, T. M., Wang, M., Thomas, S. A., Drabick, D. A., Burgers, D. E., & Rabinowitz, J. (2015). The validity of the multi-informant approach to assessing child and

- adolescent mental health. *Psychological Bulletin*, *141*(4), 858-900. doi: 10.1037/a0038498
- Dixon-Gordon, K. L., Aldao, A., & De Los Reyes, A. (2015). Emotion regulation in context: Examining the spontaneous use of strategies across emotional intensity and type of emotion. *Personality and Individual Differences*, *86*, 271-276. doi: 10.1016/j.paid.2015.06.011
- Eastabrook, J., Flynn, J., & Hollenstein, T. (2013). Internalizing symptoms in female adolescents: Associations with emotional awareness and emotion regulation. *Journal of Child and Family Studies*, *23*, 487-496. doi: 10.1007/s10826-012-9705-y
- Eisenberg, N., & Morris, A. S. (2003). Children's emotion-related regulation. *Advances in Child Development and Behavior*, *30*(C), 189-229. doi: 10.1016/S0065-2407(02)80042-8
- Eisenberg, N., Fabes, R. A., Bernzweig, J., Karbon, M., Poulin, R., & Hanish, L. (1993). The relations of emotionality and regulation to preschoolers' social skills and sociometric status. *Child Development*, *64*(5), 1418-1438. doi: 10.2307/1131543
- Feldman, R. (2015). Mutual influences between child emotion regulation and parent-child reciprocity support development across the first 10 years of life: Implications for developmental psychopathology. *Development and Psychopathology*, *27*(4, Pt. 1), 1007-1023. doi: 10.1017/S0954579415000656
- Gratz, K. L., Weiss, N. H., & Tull, M. T. (2015). Examining emotion regulation as an outcome, mechanism, or target of psychological treatments. *Current Opinion in Psychology*, *3*, 85-90. doi: 10.1016/j.copsyc.2015.02.010
- Grolnick, W. S., Bridges, L. J., & Connell, J. P. (1996). Emotion regulation in two-year-olds: Strategies and emotional expression in four contexts. *Child Development*, *67*(3), 928-941. doi: 10.1111/j.1467-8624.1996.tb01774.x
- Gross, J. J. (2014). Emotion regulation: Conceptual and empirical foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3-20). New York: Guilford Press.
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, *26*(1), 1-26. doi: 10.1080/1047840X.2014.940781
- Halligan, S. L., Cooper, P. J., Fearon, P., Wheeler, S. L., Crosby, M., & Murray, L. (2013). The longitudinal development of emotion regulation capacities in children at risk for externalizing disorders. *Development and Psychopathology*, *25*(02), 391-406. doi: 10.1017/S0954579412001137
- Karreman, A., van Tuijl, C., van Aken, M. A., & Dekovic, M. (2008). Parenting, co-parenting, and effortful control in preschoolers. *Journal of Family Psychology*, *22*(1), 30. doi: 10.1037/0893-3200.22.1.30
- Karreman, A., van Tuijl, C., van Aken, M. A., & Deković, M. (2006). Parenting and self-regulation in preschoolers: A meta-analysis. *Infant and Child Development*, *15*(6), 561-579. doi: 10.1002/icd.478
- Lecannelier, F., Ewert, J. C. P., Grossman, S., Gallardo, D., Bardet, A. M., Bascuñan, A., & Rodríguez, J. (2014). Validación del Inventario de Conductas Infantiles para niños de entre 1½-5 años (CBCL 1½-5) en la Ciudad de Santiago de Chile [Validation of the Child Behavior Checklist for children between 1½-5 (CBCL 1½-5) in the City of Santiago, Chile]. *Universitas Psychologica*, *13*(2), 491-500. doi: 10.11144/Javeriana.UPSY13-2.vici
- McCrae, R. R., Zonderman, A. B., Bond, M. H., & Paunonen, S. V. (1996). Evaluating replicability of factors in the Revised NEO Personality Inventory: Confirmatory factor analysis versus procrustes rotation. *Journal of Social and Personality Psychology*, *70*, 552-566. doi: 10.1037/0022-3514.70.3.552
- Meyer, S., Raikes, H. A., Virmani, E. A., Waters, S., & Thompson, R. A. (2014). Parent emotion representations and the socialization of emotion regulation in the family. *International Journal of Behavioral Development*, *38*(2), 164-173. doi: 10.1177/0165025413519014
- Morris, A. S., Silk, J. S., Morris, M. D., Steinberg, L., Aucoin, K. J., & Keyes, A. W. (2011). The influence of mother-child emotion regulation strategies on children's expression of anger and sadness. *Developmental Psychology*, *47*(1), 213. doi: 10.1037/a0021021
- Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development* (Oxford,

- England), 16(2), 361-388. doi: 10.1111/j.1467-9507.2007.00389.x
- Sala, M. N., Pons, F., & Molina, P. (2014). Emotion regulation strategies in preschool children. *British Journal of Developmental Psychology*, 32(4), 440-453. doi: 10.1111/bjdp.12055
- Sanders, W., Zeman, J., Poon, J., & Miller, R. (2013). Child regulation of negative emotions and depressive symptoms: The moderating role of parental emotion socialization. *Journal of Child and Family Studies*, 24, 402-415. doi: 10.1007/s10826-013-9850-y
- Shields, A., & Cicchetti, D. (1997). Emotion regulation among school-age children: The development and validation of a new criterion Q-sort scale. *Developmental Psychology*, 33(6), 906. doi: 10.1037/0012-1649.33.6.906
- Stansbury, K., & Sigman, M. (2000). Responses of preschoolers in two frustrating episodes: Emergence of complex strategies for emotion regulation. *The Journal of Genetic Psychology*, 161(2), 182-202. doi: 10.1080/00221320009596705
- Supplee, L. H., Skuban, E. M., Trentacosta, C. J., Shaw, D. S., & Stoltz, E. (2011). Preschool boys' development of emotional self-regulation strategies in a sample at risk for behavior problems. *The Journal of Genetic Psychology*, 172(2), 95-120. doi: 10.1080/00221325.2010.510545
- Suveg, C., & Zeman, J. (2011). Creative applications and innovations to emotion assessment in children and adolescents: An introduction to the special section. *Journal of Experimental Child Psychology*, 110, 133-140. doi: 10.1016/j.jecp.2011.04.006
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston, MA: Allyn & Bacon.
- Tamir, M. (2016). Why do people regulate their emotions? A taxonomy of motives in emotion regulation. *Personality and Social Psychology Review*, 20(3), 199-222. doi: 10.1177/1088868315586325
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. In N. A. Fox (Ed.), *The development of emotion regulation and dysregulation: Biological and behavioral aspects. Monographs of the Society for Research in Child Development*, 59(2-3, Serial No. 240), 25-52. doi: 10.1111/j.1540-5834.1994.tb01276.x
- Thompson, R. A. (2011a). Methods and measures in developmental emotions research: Some assembly required. *Journal of Experimental Child Psychology*, 110(2), 275-285. doi: 10.1016/j.jecp.2011.04.007
- Thompson, R. A. (2011b). Emotion and emotion regulation: Two sides of the developing coin. *Emotion Review*, 3(1), 53-61. doi: 10.1177/1754073910380969
- Thompson, R. A., Virmani, E. A., Waters, S. F., Raikes, H. A., & Meyer, S. (2013). The Development of Emotion Self-Regulation. In K. C. Barrett, N. A. Fox, G. A. Morgan, D. J. Fidler, & L. A. Daunhauer (Eds.), *Handbook of self-regulatory processes in development: New directions and international perspectives*. New York: Psychology Press.
- Williams, B., Brown, T., & Onsmann, A. (2010). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine*, 8(3), 1-13.

Received: 29/12/2016

1<sup>st</sup> revision: 05/02/2018

2<sup>nd</sup> revision: 29/03/2018

Accepted: 30/03/2018

