Versión publicada del artículo (Published) / *Published version of the article (Published)*

Título / *Title*
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Publicado en / *Published in*
Psicothema

Fecha de asignación a volumen y número / *Date assigned to volume and issue:* 2020
Volumen / *Volume*: 32
Número / *Issue*: 1
Páginas / *Pages*: 153-159
DOI: https://doi.org/10.7334/psicothema2019.156

Psicothema

Psicothema 2020, Vol. 32, No. 1, 153-159
doi: 10.7334/psicothema2019.156

ISSN 0214 - 9915 CODEN PSOTEG

www.psicothema.com

Validation of the spanish version of the Cognitive Emotion Regulation Questionnaire in adolescents

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Abstract

Background: The Cognitive Emotion Regulation Questionnaire (CERQ) is an instrument that assesses nine cognitive strategies to cope with negative situations. The aim of this study was to validate the CERQ for a sample of Spanish adolescents, to analyse reliability and validity, and to examine the factor structure by confirmatory factor analysis. **Method:** The Spanish version of CERQ (CERQ-S) and other scales (gratitude, emotional intelligence, satisfaction with life, depression, anxiety and stress) were completed by 835 adolescents aged 14-18 (455 girls) from the South of Spain. **Results:** The results showed that the CERQ-S in adolescents (CERQ-SA) has appropriate psychometric properties with indexes of reliability α = .89 and ω = .96, and the original nine-factor structure was confirmed. There was also significant correlation between the CERQ-SA and the other scales, showing evidence of convergent validity. **Conclusions:** The results suggest that the CERQ-SA could be useful for appraising cognitive coping in adolescents. This will help to expand the study and understanding of these strategies, their influence and their consequences for adolescents' psychological functioning and health.

Keywords: Cognitive Emotion Regulation Questionnaire, Spanish validation, adolescents, confirmatory factor analysis.

Resumen

Validación de la versión española del Cuestionario de Estrategias de Regulación Cognitiva Emocional en adolescentes. **Antecedentes:** el Cuestionario de Estrategias de Regulación Cognitiva Emocional (CERQ) es un instrumento que evalúa nueve estrategias cognitivas para afrontar situaciones negativas. El objetivo de este estudio fue validar el CERQ en una muestra de adolescentes españoles, analizar la fiabilidad y validez, y examinar la estructura factorial mediante el análisis factorial confirmatorio. **Método:** la versión española del CERQ (CERQ-S) y otras escalas (gratitud, inteligencia emocional, satisfacción con la vida, depresión, ansiedad y estrés) fueron completadas por 835 adolescentes entre 14 y 18 años (455 mujeres) del sur de España. **Resultados:** los resultados mostraron que el CERQ-S en adolescentes (CERQ-SA) posee adecuadas propiedades psicométricas con índices de fiabilidad α = .89 y ω = .96, y se corroboró la estructura original. Asimismo, hubo una correlación significativa entre el CERQ-SA y las otras escalas, mostrándose evidencia de validez convergente. **Conclusiones:** los resultados sugieren que el CERQ-SA podría ser útil para evaluar el afrontamiento cognitivo en adolescentes. Esto permitiría ampliar el estudio y conocimiento de las estrategias, cómo influyen y qué consecuencias tienen en la salud y el funcionamiento psicológico en adolescentes.

Palabras clave: Cuestionario de Estrategias de Regulación Cognitiva Emocional, validación española, adolescentes, análisis factorial confirmatorio.

Our emotions are part of daily life and influence how we adapt to different situations (Garnefski, Van den Kommer et al., 2002). In the last decade, the study of emotions and their regulation has expanded in the domain of psychology with a large body of research articles (Medrano, Moretti, Ortiz, & Pereno, 2013).

Emotion regulation is a complex process involving several dimensions –biological, psychological, cognitive (conscious and unconscious processes), behavioural and social– through which people manage their emotions and cope with different situations (Garnefski, Kraaij, & Spinhoven, 2001).

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There are several ways to cope with an event. Lazarus (1993) distinguished two strategies –problem-focused coping and emotion-focused coping– and developed the Ways of Coping Questionnaire (WCQ) based on this classification. Nevertheless, according to Garnefski et al. (2001) the WCQ questionnaire did not consider the existence of more than these two strategies to classify the ways to cope with a situation nor a clear separation between cognitive and behavioural strategies. Thus, Garnefski, Van den Kommer et al. (2002) deemed the regulation of emotions to be a broad process with several dimensions, making it impossible to study in its entirety, and established that "the regulation of emotions through thoughts or cognitions is inextricably associated with human life and helps people to manage or regulate emotions or feelings" (Garnefski, Van den Kommer et al., 2002, p. 405), creating the Cognitive Emotion Regulation Questionnaire (CERQ). In this way, the dimensions of cognitive coping were defined, clarified and studied.

Originally, the CERQ was designed to be used in both adolescents and adults (Garnefski, Kraaij y Spinhoven, 2002) but later Garnefski, Rieffe, Jellesma, Terwogt y Kraaij (2007) developed a version for children aged 9-11 years. This questionnaire has been validated for different languages and populations, for instance: French, using participants aged 18-37 years (Jermann, Van der Linden, d'Acremont, & Zermatten, 2006); Chinese, with children aged 9-11 years (Liu, Chen, & Blue, 2016); Turkish, with participants aged 18-47 years (Tuna & Bozo, 2012); Persian, with university students over 18 years old (Abdi, Taban, & Ghaemian, 2012); Brazilian, using a sample with a mean age of 22.7 years (Schäfer et al., 2018); Romanian, with participants aged 13-18 years and 18-65 years (non-clinical sample) and 18-67 years (clinical sample) (Perte & Miclea, 2011); Argentinian, using university students with a mean age of 24.6 years (Medrano et al., 2013).

With regard to Spain, there are only two versions of the CERQ: the CERQ-S, validated for a sample aged 16-58 years with values Cronbach's α between .60 and .89. (Domínguez-Sánchez, Lasa-Aristu, Amor, & Holgado-Tello, 2011), and the CERQ-Sk, for children aged 7-12 years showed a reliability of total questionnaire α = .88 (Orgilés, Morales, Fernández-Martínez, Ortigosa-Quiles, & Espada, 2018). There is not, as yet, a validated Spanish version of the CERQ for use only with adolescents.

A lot of researches have studied the relationships between the cognitive strategies and psychopathological disorders or negative variables (e. g., Garnefski, Van den Kommer et al., 2002; Perte & Miclea, 2011) founding a positive correlation between maladaptive strategies and anxiety, depression and stress. However, there are little studies that show how coping strategies are associated to positive variables or personal resources and strengths (Balzarotti, Biassoni, Villani, Prunas, & Velotti, 2016). For example, with adults' samples Esmaeilinasab, Khoshk and Makhmali (2016) showed positive correlations between life satisfaction and some coping strategies. Likewise, Mikolajczak, Nelis, Hansenne and Quoidbach (2008) found that higher trait EI people chose more often adaptive strategies to preserve positive emotions and to manage negative ones. Moreover, in gratitude field, positive strategies were more often used by grateful people to cope the problems, which seemed to reduce their levels of experienced stress (Wood, Joseph, & Linley, 2007).

Adolescence is an important stage of life where children must face multiple changes associated with their own body, academic performance and relationships with themselves and others. In spite of being an essential period for the acquisition and development of mechanisms in order to regulate emotions, there is little knowledge of adolescence in this field (Theurel & Gentaz, 2018). Thus, it would be useful to have a validated tool for obtaining specific and reliable information on coping strategies only in adolescents' samples, not in samples which mix children and adolescents (like CERQ-Sk do) nor adolescents and adults (like CERQ-S do).

To have an adapted instrument for measure how adolescents cope changes and negative situations, would permit to expand the knowledge of emotion regulation that can have an important influence in this population. Moreover, the most of the validations of CERQ used to check convergent validity, negative variables (measures of anxiety, depression and stress). In this study it was gone in depth and examined relationships between coping strategies and negative as depression, anxiety and stress and positive variables as satisfaction with life, gratitude and emotional intelligence, taking into account previous studies which have shown positive effects of these variables in adolescents' positive adjustment, coping and health, among other aspects (e.g. Rey, Sánchez-Álvarez, & Extremera, 2018). So, the main objective of this study was to provide evidence of the validity and reliability of the CERQ-S for Spanish adolescents (CERQ-SA).

Method

Participants

A sample of 835 adolescents (455 females) was collected from six high schools in the south of Spain. Their level of study ranged from the third year of compulsory secondary education to the second year of high school (9^{th}-12^{th} grades), spanning several vocational education and training courses. The mean age and standard deviation was 15.6 ±1.19, with an age range of 14-18 years. Of these adolescents, 15.5% males and 18.5% females were 14 years old, 33.9% males and 28.4% females were 15 years old, 26.1% males and 26.2% females were 16 years old, 16.6% males and 17.6% females were 17 years old, and 7.9% males and 9.5% females were 18 years old.

Instruments

Cognitive Emotion Regulation Questionnaire (Garnefski, Kraaij et al., 2002). This questionnaire comprises 36 items that evaluate nine cognitive strategies: rumination; catastrophizing; self-blame; other-blame; putting into perspective; acceptance; positive refocusing; positive reappraisal; and refocus on planning. Answers are evaluated on a five-point Likert scale from 1 (*Almost never*) to 5 (*Almost always*). For the validation process we used the Spanish version: the CERQ-S (Domínguez-Sánchez et al., 2011).

Wong and Law Emotional Intelligence Scale (Wong & Law, 2002). This scale comprises 16 items that evaluate four aspects of emotional intelligence: self-emotion appraisal; other's emotion appraisal; use of emotion; and regulation of emotion. The range of responses is evaluated on a seven-point Likert scale from 1 (*Totally disagree*) to 7 (*Totally agree*). This scale provides a global score for self-reported emotional intelligence. We used the Spanish version for this research (Extremera, Rey, & Sánchez-Álvarez, 2019).

Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). This scale comprises five indicators of overall satisfaction with one's life. The answers are evaluated on a five-point Likert scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The Spanish version was used for this study (Atienza, Balaguer, & García-Merita, 2003).

Gratitude Questionnaire (McCullough, Emmons, & Tsang, 2002). This questionnaire is a six-item measure of grateful disposition. The range of responses is evaluated on a seven-point Likert scale from 1 (*Totally disagree*) to 7 (*Totally agree*). In this study we used the Spanish validation of the five-item version (Rey et al., 2018).

Depression, Anxiety and Stress Scales (Lovibond & Lovibond, 1995). These scales comprise 21 items that evaluate three emotional states: depression, anxiety and stress. The answers are evaluated on a four-point Likert scale from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much or most of the time*). We used the Spanish version for this research (Bados, Solanas, & Andrés, 2005).

Procedure

Parents were informed of participation and gave their informed consent to the school. There was no parental refusal for any adolescent's participation. The study was carried out in accordance with the Ethical Committee of the University of Malaga (62-2016-H) and the Declaration of Helsinki (2013).

Data analysis

Statistical analyses were carried out using SPSS v24, LISREL v9.2 and Rstudio (packages Lavaan and SEM Tools). The structure of the CERQ-SA was examined through confirmatory factor analysis using weighted least squares estimation, due to it is well suited to extracting maximum information from small data sets. Following the recommendations of Hu and Bentler (1999), goodness of fit was assessed with the Satorra-Bentler χ^2 index (S-Bχ^2/df ratio less than 3, Kline, 2016), comparative fit index (CFI) and non-normative fit index (NNFI) values of .95 or higher reflect a good fit; root-mean-square error of approximation (RMSEA) and standardized root-mean-square residual (SRMR) values of less than .08 indicate an acceptable fit. To determine the internal consistency of the instruments, we estimated Cronbach's alpha coefficient and McDonald's omega coefficient. Finally, it was assessed a factor convergent by the items' average variance extracted (AVE), with values over .50 indicating acceptable shared variance between factors, and composite reliability (CR) by factor reliability with acceptable .80 index. The CFA model's invariance across gender was evaluating through four levels of factorial invariance: configural invariance, weak factorial invariance, strong factorial invariance, and strict factorial invariance (Timmons, 2010).

Results

Descriptive statistics

The descriptive characteristics of the CERQ-SA in the present sample are presented in Table 1. All values of skewness, and kurtosis for CERQ-SA items are an acceptable range (-2,2), and the distribution of items was evaluated as normal (Shapiro-Wilk statistic).

Confirmatory factor analysis

According to the original structure (Garnefski, Kraaij et al., 2002) the nine-factor model was successful, obtaining adequate fit indexes: S-Bχ^2 (505, N = 835) = 1477.07, S-Bχ^2/df = 2.92, p < .001; RMSEA = .048; 95% CI = .045–.050; CFI = .965; NNFI = .957; SRMR = .064. An alternative CFA was estimated to compare with the hypothesized model. The alternative model was made up of one-dimensional. This model showed poor fit indexes and chi-square increased significantly, ΔS-Bχ^2 (569, N = 835) = 4743.65, p < .001, RMSEA = .094; 95%, CFI = .884; NNFI = .782; SRMR = .182. Therefore, comparisons of these models indicate different dimensions within separate factorial loads of the CERQ.

The nine-factor model's factor loadings ranged between .23 and .79 (see Table 1). All items showed factor loadings greater than .40, except for items 8 and 20 (values of .23 and .28, respectively). Also it is included in Table 1 a goodness of fit statistic R^2 estimated ranged between .08 and .62. To confirm the goodness fit of the nine-factor model, a new CFA was performed removing items 8 and 20. The adjustment results showed poor fit indices: S-Bχ^2 (443, N = 835) = 2908.30, S-Bχ^2/df = 6.56, p < .001; RMSEA = .081; 95% CI = .078–.084; CFI = .90; NNFI = .882; SRMR = .093. Compute significance test on the difference between Satorra-Bentler scaled chi square statistics (Satorra & Bentler, 2001) was performed according to the procedures by Crawford and Henry (2003). The results showed significant differences between the two indices of Satorra-Bentler chi square (S-Bχ2 (62, N = 835) = 1562.06, p < .001). Therefore, removing items 8 and 20 the overall fit of the factorial model was significantly lower. So, we consider adequate maintain items 8 and 20 in the questionnaire.

Reliabilities and associations between CERQ-SA and related variables

The omega coefficient for the CERQ-SA was ω = .96, indicating high factorial reliability. The internal consistency (Alpha) indexes of the CERQ-SA subscales were appropriate, with a range of scores from .62 to .83. As expected, there was significant correlation between the dimensions of the CERQ-SA and other variables that comprise this study, showing evidence of convergent validity (see Table 2). The results revealed satisfactory CR and AVE for 'positive refocusing', 'refocus on planning', 'positive reappraisal', and below the desired values for 'self-blame', 'acceptance', 'rumination', 'putting into perspective', 'catastrophizing', and 'other-blame'.

Measurement invariance and gender differences

Before making comparison between males and females, we checked the invariance across gender. The CERQ-SA model had good fit for males (S-Bχ^2/df = 4.27, RMSEA = .062; CFI = .940) and equally good for females (S-Bχ^2/df = 2.07, RMSEA = .048; CFI = .966). Results of measurement invariance across gender baseline solution configural invariance (χ^2/df = 3.47, p < .001, RMSEA = .077; CFI = .955), showed adequate fit. Besides, we examined weak invariance (χ^2/df = 3.21, p < .001, RMSEA = .071; CFI = .956), strong invariance (χ^2/df = 3.13, p < .001, RMSEA = .071; CFI = .949), and strict invariance (χ^2/df = 3.18, p < .001, RMSEA = .072; CFI = .953) suggested all model measurement invariance.

Regarding comparative analyses of mean scores across gender, the results showed significant differences in the 'rumination' dimension (t = 6.35, p < .001), with the average scores of females being significantly higher with an average medium effect size. According to Cohen's criteria (1977) there were significant differences in the 'putting into perspective' scores (t = 2.03, p = .042), with female scores being significantly higher with a small effect size (see Table 3).

Discussion

To the best of our knowledge, this is the first study to examine the psychometric properties of the CERQ-S in Spanish adolescents aged 14-18 years. Our results showed that the CERQ-SA has similar psychometric properties to the original version (Garnefski et al., 2001). Nevertheless, in this study two items had a low loading (< .40). Item 8 ("I often think that it's much worse than what happens to others") is consistent with previous studies (Garnefski et al., 2007; Jermann et al., 2006; Medrano et al.,

Table 1
Descriptive statistics and factor loadings

CERQ subscales	M(SD)	Sk	Ku	Factor loadings	SE	R^2
F1. Self-blame [Autoculpa]						
1.I think that I am to blame [Siento que soy el único culpable de lo que ha pasado]	2.38(1.15)	.72	-.24	.55	.05	.30
10.I think that I have been stupid [Me siento único responsable de lo ocurrido]	2.53(1.20)	.56	-.56	.60	.09	.36
19.I think that it's my own fault [Reflexiono sobre los errores que he cometido en este asunto]	3.66(1.16)	-.52	-.64	.46	.08	.21
28.I think that it's all caused by me [Básicamente considero que la causa de lo que me ha ocurrido debe estar en mí mismo]	2.78(1.21)	.28	-.81	.69	.10	.48
F2. Acceptance [Aceptación]						
2.I think that I have to accept it [Creo que tengo que aceptar lo que ha pasado]	3.63(1.13)	-.52	-.58	.66	.04	.44
11.It just happened; there is nothing I can do about it [Creo que tengo que aceptar la situación]	3.59(1.17)	-.45	-.69	.73	.07	.54
20.I think that I can't change it [Creo que no puedo cambiar nada de lo ocurrido]	3.05(1.24)	.07	-1.00	.28	.07	.08
29.I think that I can't do anything about it [Creo que debo aprender a vivir con ello]	3.20(1.26)	-.10	-1.02	.60	.07	.36
F3. Rumination [Rumiación]						
3.Again and again, I think of how I feel about it [Pienso a menudo en cómo me siento en relación con lo que me ha pasado]	3.39(1.16)	-.30	-.74	.61	.04	.37
12.I often think of what I am thinking and feeling about it [Me preocupa lo que piense y sienta sobre lo que me ha pasado]	3.12(1.23)	-.10	-.91	.63	.08	.40
21.All the time, I think that I want to understand why I feel that way [Quiero entender por qué la experiencia que he tenido me hace sentir así]	3.28(1.23)	-.22	-.95	.60	.08	.37
30.I often think of how I feel about what happened [Pienso continuamente en los sentimientos que la situación ha provocado en mí]	3.08(1.25)	.02	-.98	.71	.08	.51
F4. Positive refocusing [Focalización positiva]						
4.I think of nicer things [Pienso en algo más agradable que lo que me ha ocurrido]	2.98(1.31)	-.04	-1.11	.68	.05	.47
13.I think of nicer things that have nothing to do with it [Pienso en cosas agradables que nada tienen que ver con lo que me ha pasado]	2.63(1.32)	.32	-1.02	.72	.06	.52
22.I think of something nice and not about what happened [Pienso en algo agradable en vez de pensar en lo ocurrido]	2.70(1.30)	.27	-1.03	.78	.06	.61
31.I think of nice things that have happened to me [Pienso en experiencias agradables]	2.88(1.31)	.13	-1.13	.77	.06	.60
F5. Refocus on planning [Planificación]						
5.I think about what would be the best for me to do [Pienso en qué es lo mejor que podría hacer]	3.70(1.21)	-.62	-.61	.66	.04	.43
14.I think of how I can cope with it [Pienso en cuál sería la mejor forma de enfrentarme a la situación].	3.66(1.19)	-.57	-.62	.78	.06	.60
23.I think of how I can change it [Pienso en cómo cambiar la situación]	3.45(1.18)	-.38	-.72	.69	.06	.48
32.I think of what I can do best [Pienso en un plan acerca de lo mejor que podría hacer]	3.31(1.23)	-.19	-.93	.75	.06	.57
F6. Positive reappraisal [Reevaluación positiva]						
6.I think that I can learn from it [Creo que puedo aprender algo de la situación]	3.72(1.19)	-.65	-.52	.69	.04	.48
15.I think that it makes me feel 'older and wiser' [Creo que lo que ha pasado me puede hacer más fuerte]	3.72(1.23)	-.67	-.61	.65	.05	.42
24.I think that there are good sides to it as well [Creo que la situación tiene también su lado positivo]	3.04(1.33)	-.04	-1.16	.72	.06	.52
33.I think that it's not all bad [Busco los aspectos positivos de la cuestión]	3.08(1.27)	-.02	-1.09	.76	.06	.58
F7. Putting into perspective [Toma de perspectiva]						
7.I think that worse things can happen [Creo que todo podría haber sido mucho peor]	3.28(1.26)	-.20	-1.04	.58	.06	.34
16.I think that worse things happen to others [Creo que otras personas pasan por experiencias mucho peores]	3.81(1.24)	-.76	-.53	.64	.08	.41
25.I think that it's not as bad as other things that could happen [Creo que no ha sido tan malo en comparación a otras cosas]	3.13(1.24)	-.03	-1.00	.63	.08	.40
34.I think that there are worse things in the world [Me digo que hay cosas peores en la vida]	3.42(1.31)	-.32	-1.06	.65	.08	.42
F8. Catastrophizing [Catastrofismo]						
8.I often think that it's much worse than what happens to others [A menudo pienso que lo que me ha pasado es mucho peor que lo que le ha ocurrido a otras personas]	2.63(1.33)	.34	-1.07	.23	.08	.05
17.Again and again, I think about how terrible it all is [Sigo pensando en lo terrible que ha sido lo que me ha pasado]	2.68(1.20)	.37	-.74	.79	.50	.62
26.All the time, I think that this is the worst thing that can happen to you [Frecuentemente pienso que lo que he sufrido es lo peor que le puede pasar a una persona]	2.07(1.15)	.89	-.09	.41	.27	.17
35.I often think about how horrible the situation was [Pienso continuamente en lo horrible que ha sido la situación]	2.54(1.19)	.51	-.63	.74	.47	.55
F9. Other-blame [Culpar a otros]						
9.I think that others are to blame [Me parece que otros son culpables de lo ocurrido]	2.18(1.05)	.74	-.01	.74	.03	.55
18.I think that others have been stupid [Me parece que otros son responsables de lo que ha ocurrido]	2.13(1.04)	.83	.17	.76	.06	.58
27.I think that it's the fault of others [Pienso en los errores que otros han cometido en este asunto]	2.60(1.24)	.41	-.78	.41	.06	.16
36.I think that it's all caused by others [Pienso que, básicamente, la culpa es de otros]	1.90(1.04)	1.17	.85	.68	.05	.47

Note: M=Mean; SD=Standard deviation; Sk=Skewness; Ku=Kurtosis

Table 2
Means, standard deviations, correlations and reliabilities

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Self-blame	–														
2. Acceptance	.44**	–													
3. Rumination	.51**	.51**	–												
4. Positive refocusing	.06	.27**	.17**	–											
5. Refocus on planning	.32**	.44**	.42**	.44**	–										
6. Positive reappraisal	.19**	.39**	.22**	.49**	.64**	–									
7. Putting into perspective	.21**	.35**	.24**	.39**	.51**	.61**	–								
8. Catastrophizing	.35**	.28**	.43**	.07*	.06	.01	.10**	–							
9. Other-blame	-.01	.08*	.16**	.17**	.11**	.09**	.16**	.34**	–						
10. Total emotional intelligence	.06	.26**	.11**	.29**	.50**	.45**	.30**	-.06	.07*	–					
11. Gratitude	.07*	.18**	.13**	.21**	.36**	.33**	.33**	-.06	-.01	.42**	–				
12. Satisfaction with life	-.12**	.06	-.05	.23**	.25**	.31**	.20**	-.16**	-.01	.37**	.51**	–			
13. Stress	.32**	.20**	.41**	-.02	.08*	-.04	.06*	.35**	.16**	-.13**	-.11**	-.26**	–		
14. Anxiety	.29**	.14**	.32**	-.01	-.02	-.09**	-.01	.36**	.13**	-.18**	-.21**	-.28**	.73**	–	
15. Depression	.34**	.15**	.35**	-.11**	-.07*	-.17**	-.07**	.39**	.08*	-.30**	-.28**	-.42**	.72**	.73**	–
M	2.84	3.37	3.22	2.80	3.53	3.39	3.41	2.48	2.20	4.70	5.57	4.82	1.07	.57	.82
(SD)	(.83)	(.84)	(.91)	(1.07)	(.96)	(.99)	(.93)	(.83)	(.80)	(.98)	(1.05)	(1.29)	(.72)	(.69)	(.80)
Alpha	.66	.65	.73	.83	.80	.79	.71	.62	.72	.87	.79	.83	.83	.83	.89
Omega	.67	.67	.73	.83	.81	.79	.71	.64	.73	.87	.73	.83	.83	.84	.90
CR	.67	.67	.73	.83	.81	.80	.72	.65	.75	.87	.81	.86	.87	.88	.92
AVE	.34	.35	.41	.55	.52	.50	.39	.35	.44	.31	.48	.55	.43	.43	.54

Note: CR = Composite Reliability; AVE = Average Variance Extracted; * $p < .05$, ** $p < .01$

Table 3
Comparative analyses for male and female sample

CERQ subscales	Male N = 380 M (SD)	Female N = 455 M (SD)	T (p)	Effect size (Cohen's *d*)
1.Self-blame	2.79 (.83)	2.88 (.83)	-1.59 (.112)	–
2.Acceptance	3.32 (.86)	3.41 (.82)	-1.64 (.099)	–
3.Rumination	3.00 (.87)	3.40 (.90)	-6.35 (.001)	.45
4.Positive refocusing	2.87 (1.03)	2.74 (1.09)	1.67 (.095)	–
5.Refocus on planning	3.51 (.93)	3.54 (.98)	-.55 (.567)	–
6.Positive reappraisal	3.38 (.92)	3.40 (1.05)	-.23 (.818)	–
7.Putting into perspective	3.34 (.92)	3.47 (.93)	-2.03 (.042)	.15
8.Catastrophizing	2.43 (.82)	2.53 (.84)	-1.88 (.059)	–
9.Other-blame	2.23 (.79)	2.19 (.82)	.72 (.471)	–

2013; Perte & Miclea, 2011) but Jermann et al. (2006) suggested it could be more associated with a process of social comparison. Taking into account that social comparison is a key element in adolescence, further research into the formulation of this item is necessary.

Item 20 ("I think that I can't change it") also had a low loading. According to early researches (Domínguez-Sánchez et al., 2011; Ireland, Clough, & Day, 2017; Jermann et al., 2006; Medrano et al., 2013; Tuna & Bozo, 2012), although this item belongs to the 'acceptance' strategy, it was suggested that it is closer to the resignation: a passive process rather than an active acceptance. Thus, further research on this item is necessary because this problem has been found also in different populations and languages.

The significant correlation between the subscales of the CERQ-SA and other variables provides different information. Firstly, the adaptive strategies of 'positive refocusing', 'refocus on planning', 'positive reappraisal' and 'putting into perspective' all correlated positively with emotional intelligence, satisfaction with life and gratitude. These results are consistent with early studies, where there were correlations with other positive variables (Tuna & Bozo, 2012). Likewise, they have negative associations with depression.

Secondly, 'self-blame', 'rumination', 'catastrophizing' and 'other-blame' strategies had a positive relationship with anxiety, depression and stress. These results are in accordance with those of Perte and Miclea (2011), who used the same measuring instrument.

Thirdly, although 'acceptance' is considered an adaptive strategy (Garnefski et al., 2001), our results showed a positive relationship with stress, anxiety and depression, in addition to gratitude and emotional intelligence. The outcomes of different studies are controversial with regard to 'acceptance'; in some studies it correlates positively with depression (Garnefski et al., 2007; Liu et al., 2016) and with both anxiety and depression (Perte & Miclea, 2011; Tuna & Bozo, 2012), whereas in other studies the opposite is found (Garnefski et al., 2001). It would be interesting to further clarify 'acceptance' by either making changes to its formulation or distinguishing active acceptance from passive acceptance, because it can be interpreted as a positive strategy (helping to bear stressful events) or negatively as resignation and therefore a hopeless strategy.

In relation to gender differences in coping strategies, according to previous studies, our results showed that females used more often than males 'rumination' (Garnefski, Teerds, Kraaij, Legerstee, & Van den Kommer, 2004) and 'putting into perspective' strategies (Abdi et al., 2012; Jermann et al., 2006; Medrano et al., 2013).

One potential explanation to this finding could be that women, more than men, are more likely to amplify their moods because of they have a greater tendency to be attentive to moods (Fernández-Berrocal & Extremera, 2008) which may interfere with effective problem solving, making negative cognitions more accessible. This may interfere with the initiation of positive behaviours arising the prevalence rate in women of emotional maladjustment and the use of maladaptive coping strategies (Nolen-Hoeksema, 2003).

Likewise, in both males and females, 'refocus on planning' was the strategy most often used (Abdi et al., 2012; Garnefski et al., 2004) and 'castastrophizing' and 'other-blame' the two strategies less used (Garnefski et al., 2004). These results suggest that although all cognitive strategies can be used by adolescents, some of them need being mastered. On the basis of this it might be that the mastering or refinement of the cognitive emotion regulation abilities depends on the number of emotion-eliciting stressful situations (Garnefski & Kraaij, 2006). It seems reasonable to assume that the cognitive emotion regulation process continues to spread out in response to newly experienced negative events.

Findings of this research have several limitations that should be taken into consideration for future investigations. First, we used a convenience sample focus on a specific zone of Spain (South). It would be interesting to use a random sampling method for generalizing our outcomes. Moreover, the instrument's stability over time was not analysed due to our study was cross-sectional. Thus, it would be useful to make longitudinal researches to examine if the results maintain throughout weeks. Furthermore, our sample did not include adolescents with 13 years. Future studies should replicate these analyses including this age.

Despite of these limitations, our results have some implications that may be considerate. First of all, the validation of CERQ-SA should permit to researchers to go in depth in the study and knowledge of emotion regulation in this specific population. On the one hand, practitioners could assess and analyse the several coping strategies used by adolescents to manage stressful or negative situations, and their consequences. Thus, adaptive strategies could be trained to a better copy when stressful events occur. On the other hand, it could be investigated the relationships and the influence that cognitive strategies could have with psychopathological symptoms in order to increase up adolescent's health.

To sum up, this study provides evidences about reliability and validity of the CERQ-SA to appraisal coping strategies used by both females and males adolescents to manage stressful events.

Acknowledgement

This research has been funded by University of Malaga (PPIT. UMA.B1.2017/23).

References

Abdi, S., Taban, S., & Ghaemian, A. (2012). Cognitive emotion regulation questionnaire: Validity and reliability of the Persian translation of the CERQ (36-item). *Procedia Social and Behavioral Sciences, 32,* 2-7. https://doi.org/10.1016/j.sbspro.2012.01.001

Atienza, F. L., Balaguer, I., & García-Merita, M. L. (2003). Satisfaction with Life Scale: Analysis of factorial invariance across sexes. *Personality and Individual Differences, 35*(6), 1255-1260. https://doi.org/10.1016/S0191-8869(02)00332-X

Bados, A., Solanas, A., & Andrés, R. (2005). Psychometric properties of the Spanish version of Depression, Anxiety and Stress Scales (DASS). *Psicothema, 17*(4), 679-683.

Balzarotti, S., Biassoni, F., Villani, D., Prunas, A., & Velotti, P. (2016). Individual differences in cognitive emotion regulation: Implications for subjective and psychological well-being. *Journal of Happiness Studies, 17*, 125-143. https://doi.org/10.1007/s10902-014-9587-3

Cohen, K. (1977). *Statistical power for the behavioral sciences* (Rev. ed.). New York: Academic Press.

Crawford, J. R., & Henry, J. D. (2003). The Depression Anxiety Stress Scales: Normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology, 42*, 111-131.

Declaration of Helsinki (2013). Ethical principles for medical research involving human subjects. *JAMA, 310*(20), 2191-2194. http://doi.org/10.1001/jama.2013.281053

Diener, E., Emmons, R. A., Larsen, J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment, 49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Domínguez-Sánchez, F. J., Lasa-Aristu, A., Amor, P. J., & Holgado-Tello, F. P. (2011). Psychometric properties of the spanish version of the Cognitive Emotion Regulation Questionnaire. *Assessment, 20*(2), 253-261. https://doi.org/10.1177/1073191110397274

Esmaeilinasab, M., Khoshk, A. A., & Makhmali, A. (2016). Emotion regulation and life satisfaction in university students: Gender differences. *European Proceedings of Social and Behavioural Sciences EpSBS, 82*, 798-809. http://dx.doi.org/10.15405/epsbs.2016.11.82

Extremera, N., Rey, L., & Sánchez-Álvarez, N. (2019). Validation of the Spanish version of the Wong Law Emotional Intelligence Scale (WLEIS-S). *Psicothema, 31*(1), 94-100. http://doi.org/10.7334/psicothema2018.147

Fernández-Berrocal, P., & Extremera, N. (2008). A review of trait meta-mood research. In M. A. Columbus (Ed.), *Advances in Psychology Research* (pp. 17-45). San Francisco: Nova Science.

Garnefski, N., & Kraaij, V. (2006). Relationships between cognitive emotion regulation strategies and depressive symptoms: A comparative study of five specific samples. *Personality and Individual Differences, 40*(8), 1659-1669. http://doi.org/10.1016/j.paid.2005.12.009

Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences, 30*, 1311-1327. https://doi.org/10.1016/S0191-8869(00)00113-6

Garnefski, N., Kraaij, V., & Spinhoven, P. (2002). *Manual for the use of Cognitive Emotion Regulation Questionnaire*. The Netherlands: DATEC, Leiderdorp.

Garnefski, N., Rieffe, C., Jellesma, F., Terwogt, M. M., & Kraaij, V. (2007). Cognitive emotion regulation strategies and emotional problems in 9-11-year-old children. *European Child & Adolescent Psychiatry, 6*(1), 1-9. https://doi.org/10.1007/s00787-006-0562-3

Garnefski, N., Teerds, J., Kraaij, V., Legerstee, J., & Van den Kommer, T. (2004). Cognitive emotion regulation strategies and depressive symptoms: Differences between males and females. *Personality and Individual Differences, 36*, 267-276. https://doi.org/10.1016/S0191-8869(03)00083-7

Garnefski, N., Van den Kommer, T., Kraaij, V., Teerds, J., Legerstee, J., & Onstein, E. (2002). The relationship between cognitive emotion regulation strategies and emotional problems: Comparison between a clinical and a non-clinical sample. *European Journal of Personality, 16*, 403-420. http://doi.org/10.1002/per.458

Hu, L., & Bentler, P. M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. http://doi.org/10.1080/10705519909540118

Ireland, M. J., Clough, B. A., & Day, J. J. (2017). The cognitive emotion regulation questionnaire: Factorial, convergent, and criterion validity

analyses of the full and short versions. *Personality and Individual Differences, 110*, 90-95. https://doi.org/10.1016/j.paid.2017.01.035

Jermann, F., Van der Linden, M., d'Acremont, M., & Zermatten, A. (2006). Cognitive Emotion Regulation Questionnaire (CERQ): Confirmatory factor analyses and psychometric properties of the French translation. *European Journal of Psychological Assessment, 22*, 126-131. http://doi.org/10.1027/1015-5759.22.2.126

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

Lazarus, R. S. (1993). Coping theory and research: Past, present, and future. *Psychosomatic Medicine, 55*, 234-247.

Liu, W., Chen, L., & Blue, P. R. (2016). Chinese Adaptation and Psychometric Properties of the Child Version of the Cognitive Emotion Regulation Questionnaire. *PloS ONE, 11*(2)*:* e0150206. https://doi.org/10.1371/journal.pone.0150206

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy, 33*(3), 335-343. https://doi.org/10.1016/0005-7967(94)00075-U

McCullough, M. E., Emmons, R. A., & Tsang, J. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology, 82*(1), 112-127. https://doi.org/10.1037//0022-3514.82.1.112

Medrano, L. A., Moretti, L., Ortiz, A., & Pereno, G. (2013). Validación del Cuestionario de Regulación Emocional Cognitiva en universitarios de Córdoba, Argentina [Validation of the Cognitive Emotion Regulation Questionnaire in University Students of Córdoba, Argentina]. *Psykhe, 22*(1), 83-96. http://doi.org/10.7764/psykhe.22.1.473

Mikolajczak, M., Nelis, D., Hansenne, M., & Quoidbach, J. (2008). If you can regulate sadness, you can probably regulate shame: Associations between trait emotional intelligence, emotion regulation and coping efficiency across discrete emotions. *Personality and Individual Differences, 44*, 1356-1368. http://doi.org/10.1016/j.paid.2007.12.004

Nolen-Hoeksema, S. (2003). The response styles theory. In C. Papageorgiou & A. Wells (Eds.), *Depressive rumination: Nature, theory and treatment of negative thinking in depression* (pp. 107-123). New York: Wiley.

Orgilés, M., Morales, A., Fernández-Martínez, I., Ortigosa-Quiles, J. M., & Espada, J. P. (2018). Spanish adaptation and psychometric properties of the child version of the Cognitive Emotion Regulation Questionnaire. *PLOS ONE, 13*(8): e0201656. https://doi.org/10.1371/journal.pone.0201656

Perte, A., & Miclea, M. (2011). The standardization of the Cognitive Emotion Regulation Questionnaire (CERQ) on Romanian population. *Cognition, Brain, Behavior, An Interdisciplinary Journal, 15*(1), 111-130.

Rey, L., Sánchez-Álvarez, N., & Extremera, N. (2018). Spanish Gratitude Questionnaire: Psychometric properties in adolescents and relationships with negative and positive psychological outcomes. *Personality and Individual Differences, 135*, 173-175. https://doi.org/10.1016/j.paid.2018.07.005

Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66*, 507-514.

Schäfer, J. L., Cibils Filho, B. R., de Moura, T. C., Tavares, V. C., Arteche, A. X., & Kristensen, C. H. (2018). Psychometric properties of the Brazilian version of the Cognitive Emotion Regulation Questionnaire. *Trends in Psychiatry and Psychotherapy, 40*(2), 160-169. http://doi.org/10.1590/2237-6089-2017-0074

Theurel, A., & Gentaz, E. (2018). The regulation of emotions in adolescents: Age differences and emotion-specific patterns. *PloS ONE, 13*(6): e0195501. https://doi.org/10.1371/journal.pone.0195501

Timmons, A. C. (2010). Establishing factorial invariance for multiple-group confirmatory factor analysis. *KUant Guide, 22.1.* Retrieved from http://crmda.dept.ku.edu/resources/kuantguides/22.Factorial_Invariance_Guide.pdf

Tuna, E., & Bozo, Ö. (2012). The Cognitive Emotion Regulation Questionnaire: Factor Structure and Psychometric Properties of the Turkish Version. *Journal of Psychopathology and Behavioral Assessment, 34*(4), 564-570. http://doi.org/10.1007/s10862-012-9303-8

Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *Leadership Quarterly, 13*, 243-274. https://doi.org/10.1016/S1048-9843(02)00099-1

Wood, A. M., Joseph, S., & Linley, P. A. (2007). Coping style as a psychological resource of grateful people. *Journal of Social and Clinical Psychology, 26*(9), 1076-1093. https://doi.org/10.1521/jscp.2007.26.9.1076