



PSYCHOMETRIC PROPERTIES OF THE SPANISH VERSION OF THE COGNITIVE EMOTION REGULATION QUESTIONNAIRE (CERQ) IN PATIENTS WITH FIBROMYALGIA

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Introduction

The term **emotion regulation** is defined as “all the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features” [1]. There are different strategies to modify the occurrence, intensity or duration of an emotional state, which are posited to play a relevant role in chronic pain conditions such as fibromyalgia (FMS) [2]. The **Cognitive Emotion Regulation Questionnaire (CERQ)** was designed to assess 9 conscious cognitive strategies for emotion regulation [3].

The 9 cognitive strategies evaluated by the CERQ

- Self-blame
- Blaming others
- Rumination
- Catastrophizing
- Putting into perspective
- Positive refocusing
- Positive reappraisal
- Acceptance
- Planning

In this study we analyzed the psychometric properties of the Spanish version of the CERQ in a sample of patients with FMS (n= 231). Notably, the CERQ items were presented **grouped by factor** to make it easier for the patients to respond, as they often report suffering cognitive difficulties known as **fibrofog** [4].

Method

Sample data came from previous Fibromyalgia subtypes study datasets [5] and early stage data from the EUDAIMON study [6].

Study Measures	
Socio-Demographic questionnaire	
CERQ	Cognitive Emotion Regulation Questionnaire
FIQ-R	Revised Fibromyalgia Impact Questionnaire
PCS	Pain Catastrophizing Scale
STAI-T	State-Trait Anxiety Inventory
CES-D	Center for Epidemiologic Studies Depression Scale

In this study, we assess:

- ✓ Dimensionality (CFA)
- ✓ Internal consistency
- ✓ Convergent validity
- ✓ Discriminant validity

Results

• CFA

The original **9-factor model presented the best fit** [$\chi^2_{(594, N = 229)} = 1302.203, p < .001, CFI = .929, TLI = .920, \text{ and } RMSEA = .076 (90\% \text{ CI}, .071 - .082)$].

The hierarchical model, with the 9 strategies divided into 2 second-order factors (adaptive and less adaptive), presented worse fit in part due to the low factor loading ($\lambda = .135$) of Acceptance with the “Adaptive strategies” factor.

A respecification of the second-order factor model with Acceptance loading on the “less adaptive” factor (**Fig. 1**) showed a slightly better fit across all indices.

• Reliability and homogeneity of the CERQ Scales

Cronbach's α values for the CERQ subscales ranged from .77 (Acceptance) to .93 (Positive refocusing) and the values of the corrected item-total correlations ranged from .44 (item 25) to .87 (items 14, 16, and 34).

• CERQ subscale intercorrelations

Most of the significant relationships were small or medium in magnitude, suggesting that the subscales are relatively independent, with the exception of *Self-blame* and *Rumination* (.54)

• Convergent validity

Interestingly, **Acceptance presented small, positive significant correlations with the CES-D, STAI-T, FIQ-R and PCS**. The less adaptive strategies presented similar correlations. Only *Positive refocusing* and *Positive reappraisal* showed negative correlations with the study measures.

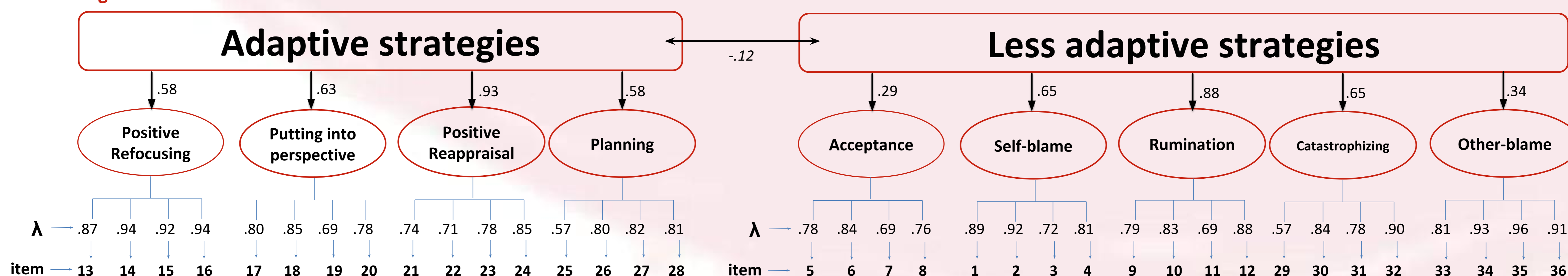
• Discriminant validity

Two subgroups were defined (FMS vs. FMS + Depression). The two subgroups had significantly different scores on six subscales (**Table 1**), although only *Positive refocusing* ($\beta = -.13$) and *Catastrophizing* ($\beta = .22$) proved to be independent predictors of subgroup membership.

CERQ Subscales (scores 4 - 20)	FMS total n= 160	FMS n= 24	FMS + DEP n= 136	Student's T	Cohen's d (90%CI)
Self-Blame	9.86 (4.34)	7.17 (2.58)	10.34 (4.42)	4.89**	.75 (.57 - 1.01)
Acceptance	14.06 (4.22)	12.79 (3.90)	14.28 (4.25)	1.60	-
Rumination	13.16 (4.48)	9.42 (3.50)	13.82 (4.32)	4.72**	1.05 (.87 - 1.40)
Positive refocusing	9.36 (5.08)	13.17 (4.72)	8.69 (4.86)	4.18**	.93 (.46 - 1.14)
Planning	12.96 (4.32)	13.29 (3.93)	12.90 (4.39)	.41	-
Positive Reappraisal	11.66 (4.49)	13.67 (4.55)	11.30 (4.40)	2.42*	.54 (.08 - .72)
Putting into perspective	13.63 (4.02)	13.96 (4.48)	13.57 (3.95)	.43	-
Catastrophizing	9.35 (4.26)	6.25 (2.36)	9.90 (4.29)	6.01**	.90 (.71 - 1.13)
Other-Blame	8.16 (4.76)	5.54 (1.93)	8.62 (4.96)	5.30**	.66 (.45 - .85)

* $p < .05$; ** $p < .01$

Figure 1



Conclusions

- The adapted version of the CERQ showed **sound psychometric properties** in patients with FMS. Grouping the items did not alter the essence of the instrument and may facilitate responses.
- In line with previous studies, the CFA revealed that **the original 9-factor model presents the best fit** among the tested factor models.
- The **Acceptance** strategy, which was originally considered as adaptive, was associated with higher levels of anxiety and depression. However, the subscale items could be interpreted by people with conditions such as FMS as reflecting reluctant resignation.
- **Comorbid depression** is significantly associated with more frequent use of catastrophizing and less use of positive refocusing.

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