

## RESEARCH ARTICLE

WILEY

# Confirmatory factor analysis and psychometric properties of the Emotion Regulation Questionnaire in participants with personality disorders

José H. Marco<sup>1,2</sup>  | Isabel Fernandez-Felipe<sup>3</sup> | Sara Fonseca<sup>1</sup>  |  
Azucena Garcia-Palacios<sup>2,3</sup> | Rosa Baños<sup>1,2</sup> | Verónica Guillen<sup>1,2</sup>

<sup>1</sup>Facultad de Psicología, Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Universidad de Valencia, Valencia, Spain

<sup>2</sup>Ciber Fisiopatología Obesidad y Nutrición (CB06/03), Instituto Salud Carlos III, Madrid, Spain

<sup>3</sup>Facultad de Ciencias de la Salud, Universitat Jaume I de Castelló, Castelló de la Plana, Castellón, Spain

## Correspondence

José H. Marco, Facultad de Psicología, Departamento de Personalidad, Evaluación y Tratamiento Psicológico, Universidad de Valencia, Avda. Blasco Ibañez, 21, Valencia CP 46010, Spain.

Email: jose.h.marco@uv.es

## Abstract

Emotional dysregulation is a key symptom in participants with personality disorders. The Emotional Regulation Questionnaire (ERQ) has been studied with nonclinical samples; however, it is necessary to confirm the factorial structure of the ERQ in participants with personality disorders. The aims of the present study were to confirm the factorial structure of the Spanish version of the ERQ and analyse its psychometric properties as well as the association between the ERQ and the Borderline Symptoms List (BSL-23) and the Difficulties in Emotion Regulation Scale (DERS). The overall sample was composed of 250 patients with personality disorders, of whom 195 met the criteria for borderline personality disorder. Confirmatory factor analysis was conducted. The two-factor model showed an acceptable fit, similar to the original structure, in the participants with personality disorders and with borderline personality disorder. Cognitive reappraisal was negatively correlated with the DERS and BSL-23, and expressive suppression was positively correlated with the BSL-23. The ERQ is a reliable and valid instrument to evaluate emotional dysregulation in participants with personality disorders and participants with borderline personality disorder.

## KEYWORDS

analysis factorial confirmatory, borderline personality disorder, emotional dysregulation, personality disorders, reliability, Spanish

## 1 | INTRODUCTION

Emotion regulation has received increasing attention in recent years (Gross & Barrett, 2011), and many studies have investigated the use of strategies in response to different emotional situations (Baker & Berenbaum, 2008; Dixon-Gordon et al., 2015; Gross, 1999; Stanton et al., 2000). Emotion regulation is defined as strategies that are

consciously or unconsciously used to increase, maintain, or decrease one or more components (feelings, behaviours, and physiological responses that make up the emotion) of an emotional response (Gross, 1999). Emotion regulation influences the emotions a person is currently experiencing and when and how they are felt and expressed (Gross, 1998). Results of studies that have analysed emotion regulation linked to psychosocial adjustment have observed a relationship

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2021 The Authors. *Clinical Psychology & Psychotherapy* published by John Wiley & Sons Ltd.

between the use of these strategies and higher subjective well-being, less stress, and better social relationships (Beath et al., 2015; English et al., 2013). Furthermore, studies suggest that the development of adaptive emotion regulation strategies, such as cognitive reappraisal, precedes more effective cognitive processing (Ochsner & Gross, 2008), which has been linked to good adjustment (Opitz et al., 2014).

In the past few years, the study of emotion regulation has grown in the research on people with personality disorders, mainly borderline personality disorder (BPD). One of the main characteristics of BPD is emotion dysregulation (Clarkin et al., 1993; Sanislow et al., 2000), which refers to the combination of emotional vulnerability (i.e., sensitivity to emotional stimuli and unusually strong reactions with a slow return to baseline) and the inability to modulate emotional responses (Linehan, 1993, 1995; Zanarini et al., 1989). According to Linehan (1995), emotion dysregulation, or the attempts of people with BPD to modulate these intense emotional reactions, is the direct or indirect cause of many of the problems these individuals display. From this perspective, the maladaptive behaviours characteristic of this disorder, such as impulsive behaviours and self-injuries, could be considered a consequence of emotion dysregulation.

Although there are many theoretical models of emotion regulation (e.g., Rothbart et al., 1992; Thompson, 1994), Gross's model has been very useful for integrating the results found and designing research on emotion regulation. Gross (1998) proposed one of the models with the most validation and impact in explaining emotion regulation. An important feature of the model is the analysis of the dynamics of emotion regulation. Emotion regulation can appear before (antecedent-focused) or after (response-focused) the emotion is produced. In this model, the author suggests five stages in the process of generating and regulating an emotion: selection and identification of a situation, situational change, focus of attention, cognitive change, and modulation of the emotional response. This model explains different emotion regulation strategies characterized by the moment when they affect the emotion regulation process, that is, during the evaluation of the importance of the emotional situation or during the modulation of the emotional response. The strategies that have received the most empirical support are cognitive reappraisal and expressive suppression. The first strategy means that, before the emotion is generated, a cognitive change occurs and modifies the impact of the situation. Cognitive reappraisal is the creation of new meanings with the aim of either neutralizing the negative emotional impact or amplifying the positive emotional outcome of a given event or result (Gross & John, 2003). The second strategy, expressive suppression, refers to inhibiting the expressive behaviour of the emotional experience, thus modifying the behavioural component of the emotional response without reducing the experience of the emotion (Gross & John, 2003; Jackson et al., 2003; John & Gross, 2007; Ochsner et al., 2002). The expressive behaviour is activated later, during the process of generating an emotion, when there is a negative emotional experience and other strategies have failed (Gross & John, 2003). It is expressed only at the behavioural level, and so the subjective experience is maintained (John & Gross, 2004).

### Key Practitioner Message

- This is the first study to confirm the two-factor model (cognitive reappraisal and emotional suppression) for the ERQ in participants with personality disorders and borderline personality disorder.
- The cognitive reappraisal subscale was negatively associated with borderline personality disorder (BSL-23).
- The expressive suppression subscale was positively associated with borderline personality disorder (BSL-23).
- This study suggests that the ERQ is a reliable and valid instrument to evaluate the regulation of emotions in participants with personality disorders and borderline personality disorder.

The results showed that the use of cognitive reappraisal has been associated with increased positive affect, lower levels of negative affect, improved interpersonal functioning, and greater overall well-being (Gross & John, 2003). However, studies suggest that expressive suppression has been associated with less expression of positive emotions, fewer interpersonal relationships, more negative affect, more depressive symptoms, and less success in recovering from mood (Gross & John, 2003; Srivastava et al., 2009).

To analyse the consequences of using different strategies and the existence of individual differences in emotion regulation, Gross and John (2003) developed the "Emotion Regulation Questionnaire" (ERQ). This 10-item questionnaire has a two-factor structure, with six items corresponding to the Cognitive Reappraisal factor and four to the Expressive Suppression factor. This questionnaire has shown adequate internal consistency for both factors (Cognitive Reappraisal,  $\alpha = .79$ ; and Expressive Suppression,  $\alpha = .73$ ) (Gross & John, 2003). Furthermore, Gross and John (2003) showed that test-retest reliability was good for both factors at an interval of 3 months ( $r = .69$ ), with satisfactory indicators of convergent and discriminant validity.

Furthermore, the psychometric characteristics of the ERQ have been analysed in several nonclinical samples, showing an adequate fit to the original two-factor model (Gross & John, 2003) and demonstrating adequate reliability and validity: French (Christophe et al., 2009); German (Abler & Kessler, 2009); Italian (Balzarotti et al., 2010); Swedish (Enebrink et al., 2013); Spanish (Cabello et al., 2013); Turkish (Eldeleklioglu & Eroglu, 2015); Persian (Hasani, 2017); and Finnish (Westerlund & Santtila, 2018).

In sum, the ERQ has been studied with samples from different countries, indicating a good fit to the original model (Gross & John, 2003). However, all these studies were carried out with non-clinical populations. When creating new assessment instruments, it is a common strategy to develop them with a nonclinical population (usually university students), with only a few studies later confirming their psychometric characteristics in the clinical population. However, it is necessary to confirm whether an evaluation instrument is reliable and maintains its original structure in the samples where it will be

used. Thus, in the case of assessing emotional regulation strategies (e.g., the ERQ), it is necessary to confirm its factorial structure in samples with personality disorders or participants with BPD because they show greater instability and fewer emotional regulation skills than the nonclinical population. Moreover, carrying out validations of the ERQ in participants with personality disorders or BPD allows us to more accurately assess the emotional dysregulation that helps us to detect BPD, one of the mental disorders with the most emotion dysregulation. Properly assessing emotional regulation problems could help to detect people at risk of developing BPD. Thus, they could receive adequate psychological treatments before the experience of severe emotional dysregulation turns into maladaptive behaviours, such as self-injury or suicide. For this reason, several studies recently conducted instrument validations in sample populations with BPD (e.g., Botsford et al., 2019; Costa et al., 2016).

Therefore, the aim of the present study is to confirm the original factor structure of the Spanish version of the ERQ and analyse its psychometric properties in a clinical sample, first in a sample of participants with different personality disorders, and second in a subsample of participants with a diagnosis of BPD. The secondary objective is to analyse the associations between the ERQ factors and the Borderline Symptoms List (BSL-23) (Bohus et al., 2009) and the Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004).

## 2 | METHODS

### 2.1 | Sample and participants

A convenience sample was recruited from three Spanish mental health centres specializing in the assessment and treatment of patients with personality disorders. Recruitment was carried out from 2010 to 2018. The inclusion criteria were (a) meeting the criteria for a personality disorder (PD), according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association [APA], 2000); and (b) signing the informed consent (in the case of minors, the informed consent of both the patient and the parents or legal guardians was required). The exclusion criteria were (a) a diagnosis of schizophrenia or bipolar disorder or (b) a moderate or severe intellectual disability. Participation was voluntary, and no financial compensation was given. This study was approved by the Hospital Ethics Committee.

The final sample was composed of 250 participants with personality disorders, of whom 77.9% ( $n = 195$ ) had BPD diagnoses. Regarding gender, 94.3% ( $n = 236$ ) were women, with an average age of 29.55 years ( $SD = 10.40$ ). Thirty-one percent ( $n = 77$ ) had elementary education, 37.9% ( $n = 95$ ) had mid-level education, and 31.1% ( $n = 78$ ) had higher education. Regarding marital status, 18% ( $n = 45$ ) were married or in a relationship. All participants were Spanish and Caucasian. Table 1 shows the participants' sociodemographic and clinical characteristics.

**TABLE 1** Sociodemographic and clinical characteristics of participants

| Variable              | Category                        | n   | %    |
|-----------------------|---------------------------------|-----|------|
| Gender                | Women                           | 236 | 94.3 |
|                       | Men                             | 14  | 5.7  |
| Marital status        | Single or divorced              | 205 | 82   |
|                       | Married or with partner         | 45  | 18   |
| Educational level     | Primary school                  | 77  | 31   |
|                       | High school                     | 95  | 37.9 |
|                       | University                      | 78  | 31.1 |
| Personality disorders | BPD                             | 195 | 77.9 |
|                       | Cluster B disorder <sup>a</sup> | 19  | 7.5  |
|                       | Cluster A disorder              | 14  | 5.6  |
|                       | UPD                             | 22  | 9    |
| Comorbidity           | No                              | 105 | 42   |
|                       | Yes                             | 145 | 58   |
| Comorbidity diagnoses | UFED                            | 37  | 14.8 |
|                       | Bulimia nervosa                 | 28  | 11.2 |
|                       | ANR                             | 20  | 8    |
|                       | ANP                             | 18  | 7.2  |
|                       | BED                             | 11  | 4.4  |
|                       | Depressive disorder             | 10  | 4    |
|                       | SRD                             | 9   | 3.6  |
|                       | PTSD                            | 3   | 1.2  |
|                       | OCD                             | 3   | 1.2  |
|                       | Bipolar disorder                | 2   | 0.8  |
|                       | GAD                             | 2   | 0.8  |
|                       | Panic disorder                  | 1   | 0.4  |
|                       | UDD                             | 1   | 0.4  |
| N=                    |                                 | 250 |      |

Abbreviations: ANP, anorexia nervosa purgative; ANR, anorexia nervosa restrictive; BED, binge-eating disorder; BPD, borderline personality disorder; GAD, generalized anxiety disorder; OCD, obsessive-compulsive disorder; PTSD, posttraumatic stress disorder; UFED, unspecified feeding or eating disorder; UPD, unspecified personality disorder; UDD, unspecified dissociative disorder.

<sup>a</sup>Participants met the criteria for personality disorder from cluster B different from Borderline Personality Disorder.

### 2.2 | Measures

#### 2.2.1 | Structured clinical interview for DSM-IV Axis I disorder (First et al., 2002)

This is an interview for making the major DSM-IV-TR (APA, 2000) Axis I diagnoses. It offers good psychometric properties: Kappa .66, demonstrating reliability (Lobbstaël et al., 2011). The Spanish version shows psychometric properties similar to those of the original scale (First et al., 1999).

## 2.2.2 | Structured clinical interview for DSM-IV Axis II disorders (First et al., 1997)

This is an interview for making the major DSM-IV Axis II diagnoses. It offers good psychometric properties: Kappa .66, demonstrating reliability (Lobbetael et al., 2011). The Spanish version shows psychometric properties similar to those of the original scale (First et al., 1999).

## 2.2.3 | Emotion Regulation Questionnaire (Gross & John, 2003)

This is a self-report questionnaire that assesses emotion regulation strategies through 10 items, with a Likert-type scale ranging from 1 to 7. It includes two subscales: the cognitive reappraisal scale (composed of six items) and the expressive suppression scale (composed of four items). Both subscales assess the regulation of both positive and negative emotions. The Spanish version shows adequate internal consistency ( $\alpha = .79$  and  $\alpha = .75$ , respectively) (Cabello et al., 2013). Higher scores indicate a greater use of emotion regulation strategies. This questionnaire has been thoroughly described in Section 1.

## 2.2.4 | Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004)

This is a self-report questionnaire that assesses difficulties or problems with emotion regulation. The Spanish version consists of 28 items with a Likert-type scale ranging from 1 to 5, structured in five subscales (Inattention, Emotional Rejection, Emotional Confusion, Emotional Interference, and Emotional lack of control). Higher scores indicate greater emotion dysregulation. The Spanish version of this questionnaire shows excellent internal consistency ( $\alpha = .93$ ) (Hervás & Jódar, 2008). The internal consistency in the present study was excellent (range  $\alpha = .82$  to  $\alpha = .95$ ).

## 2.2.5 | Borderline Symptom List (Bohus et al., 2009)

This is a self-report questionnaire that assesses the presence and severity of BPD-associated symptoms on a 23-item scale, using a Likert-type scale ranging from 0 to 4. The Spanish version, validated in a sample of patients diagnosed with BPD, presents excellent internal consistency ( $\alpha = .95$ ) (Soler et al., 2013). The internal consistency in the present study was excellent ( $\alpha = .97$ ). Higher scores indicate greater severity of BPD-associated symptoms.

## 2.3 | Procedure

Patients from three Spanish mental health centres specialized in personality disorders were informed about the aims of the study. Those

who were interested in participating signed the informed consent form and attended two assessment sessions. First, an individual evaluation session was held to establish the diagnosis using the SCID-I and SCID-II. Subsequently, the participants completed the ERQ, DERS, and BSL-23 questionnaires. The diagnostic interviews were carried out by two PhD clinical psychologists with more than 10 years of experience in the evaluation and treatment of personality disorders. All the participants selected for this research were receiving psychotherapeutic treatment at the time of evaluation.

## 2.4 | Data analysis

The same analyses were performed, first, with the entire sample ( $N = 250$ ) and, second, with the subsample of patients with a diagnosis of BPD ( $n = 195$ ). The factorial structure of the ERQ was estimated through several CFAs conducted with Mplus 8.4 (Muthén & Muthén, 2011), using the weighted least square mean and variance corrected method (WLSMV), given the ordinal nature of the data. There were no missing values.

Values equal to or above .90 on the comparative fit index (CFI) and values below .08 on the standardized root mean residual (SRMR) (Hu & Bentler, 1999) indicated a good model fit. An independent CFA was performed for each model, based on theoretical and empirical considerations of the scale. Specifically, the models tested were (a) Model 1, composed of a general factor of emotion regulation; and (b) Model 2, with two factors: cognitive reappraisal (items 1, 2, 3, 4, 5, and 6) and expressive suppression (items 7, 8, 9, and 10) (Gross & John, 2003).

Model 1 was used as a basal comparison model, whereas Model 2 determined the fit of the data to the model proposed by the authors (Gross & John, 2003). The internal consistency of the ERQ factors was estimated with Cronbach's alpha coefficient. The convergent validity of the scale was assessed through the correlations between the ERQ and the DERS, and between the ERQ and the BSL-23. Cronbach's alphas and correlations were calculated with SPSS v.25 (IBM Corp, 2017).

## 3 | RESULTS

### 3.1 | Confirmatory factorial analysis with the entire sample

Table 2 shows the goodness-of-fit indexes for the CFA conducted. Model 1 was tested as a basal comparison model. The results show lower than expected values on the CFI = .556, and a higher value on the standardized root mean squared residual (SRMSR) = .123, indicating a poor fit. Regarding Model 2, the CFA results show a good fit to the data, with values for CFI = .939 and SRMSR = .045. The two factors were not correlated with each other, and all the items had factor loadings between .59 and .81. Table 3 shows the factor loading of each item in each factor.

**TABLE 2** Fit indices for the ERQ in participants with personality disorders

| Models                   | $\chi^2$ | df | $p$   | CFI  | SRMSR |
|--------------------------|----------|----|-------|------|-------|
| 1. One factor (Model 1)  | 649.757  | 35 | <.001 | .556 | .123  |
| 2. Two factors (Model 2) | 118.707  | 34 | <.001 | .939 | .045  |

Abbreviations: CFI, comparative fit index; SRMSR, standardized root mean squared residual; TLI, Tucker–Lewis index.

**TABLE 3** Standardized solution for the ERQ and items means and standard deviations in participants with personality disorders

| Factor 1: Cognitive reappraisal | Factor 2: Expressive suppression | Item loading (SE) | $R^2$ | Mean (SD)   |
|---------------------------------|----------------------------------|-------------------|-------|-------------|
| Item 1                          |                                  | .74 (0.032)       | .55   | 3.37 (1.96) |
|                                 | Item 2                           | .81 (0.025)       | .66   | 3.64 (2.04) |
| Item 3                          |                                  | .67 (0.039)       | .44   | 3.55 (2.07) |
|                                 | Item 4                           | .59 (0.045)       | .34   | 3.61 (1.95) |
| Item 5                          |                                  | .70 (0.035)       | .48   | 3.57 (2.11) |
|                                 | Item 6                           | .63 (0.041)       | .39   | 3.66 (2.02) |
| Item 7                          |                                  | .76 (0.041)       | .57   | 3.24 (2.07) |
| Item 8                          |                                  | .66 (0.044)       | .43   | 3.82 (2.06) |
|                                 | Item 9                           | .76 (0.043)       | .35   | 4.26 (2.14) |
| Item 10                         |                                  | .61 (0.051)       | .36   | 2.65 (1.85) |

Abbreviations: ERQ, Emotional Regulation Questionnaire; SD, standard deviation; SE, standard error.

### 3.1.1 | Reliability: Internal consistency

The two-factor solution provided by Model 2 shows good internal consistency with acceptable Cronbach's alpha values (cognitive reappraisal  $\alpha = .80$ ; expressive suppression  $\alpha = .74$ ).

### 3.1.2 | Construct validity

Table 4 shows the correlations between each of the proposed ERQ subscales and the dimensions of the DERS and BSL-23. The cognitive reappraisal subscale shows a low and negative correlation with the emotional rejection and emotional confusion subscales, and a moderate and negative correlation with emotional interference, emotional lack of control, and the total score on the DERS, as well as with the BSL-23. However, the cognitive reappraisal subscale was not related to the DERS inattention subscale. The emotional suppression subscale only shows a low and positive correlation with the BSL-23. The emotional suppression subscale was not related to the DERS.

## 3.2 | Confirmatory factorial analysis with participants with BPD

Table 5 shows the goodness-of-fit indexes for the CFA conducted. Model 1 was tested as a basal comparison model. The results show lower than expected values on the CFI = .598 and a higher value on the SRMSR = .114, indicating a poor fit. Regarding Model 2, the CFA results show a good fit to the data, with values of .914 for CFI and

**TABLE 4** Correlations between ERQ and the different measuring instruments in participants with personality disorders

|                           | ERQ                   |                       |
|---------------------------|-----------------------|-----------------------|
|                           | Cognitive reappraisal | Emotional suppression |
| DERS                      |                       |                       |
| Inattention               | −0.42                 | .41                   |
| Emotional rejection       | −.217*                | .151                  |
| Emotional confusion       | −.239**               | .064                  |
| Emotional interference    | −.391**               | .089                  |
| Emotional lack of control | −.468**               | .009                  |
| DERS total score          | −.398**               | .090                  |
| BSL-23                    | −.355**               | .280**                |

Abbreviations: BSL-23, Borderline Symptom List; DERS, Difficulties in Emotion Regulation Scale; ERQ, Emotion Regulation Questionnaire.

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

SRMSR = .054. The two factors were not correlated with each other ( $r = 1.11$ ;  $p = .14$ ), and all the items had factor loadings between .54 and .79. Table 6 shows the factor loading of each item in each factor.

### 3.2.1 | Reliability: Internal consistency

The two-factor solution provided by Model 2 shows good internal consistency with acceptable Cronbach's alpha values (cognitive reappraisal  $\alpha = .77$ ; expressive suppression  $\alpha = .72$ ).

**TABLE 5** Fit indices for the ERQ in participants with BPD

| Models                   | $\chi^2$ | df | <i>p</i> | CFI  | SRMSR |
|--------------------------|----------|----|----------|------|-------|
| 1. One factor (Model 1)  | 353.887  | 35 | <.001    | .598 | .114  |
| 2. Two factors (Model 2) | 102.333  | 34 | <.001    | .914 | .054  |

Abbreviations: BPD, borderline personality disorders; CFI, comparative fit index; ERQ, Emotion Regulation Questionnaire; SRMSR, standardized root mean squared residual.

**TABLE 6** Standardized solution for the ERQ and items means and standard deviations with participants with BPD

| Factor 1: Cognitive reappraisal | Factor 2: Expressive suppression | Item loading (SE) | $R^2$ | Mean (SD)   |
|---------------------------------|----------------------------------|-------------------|-------|-------------|
| Item 1                          |                                  | .58 (0.058)       | .32   | 3.57 (1.96) |
|                                 | Item 2                           | .69 (0.058)       | .65   | 4.09 (2.13) |
| Item 3                          |                                  | .67 (0.046)       | .44   | 3.53 (2.12) |
|                                 | Item 4                           | .59 (0.045)       | .34   | 2.44 (1.73) |
| Item 5                          |                                  | .55 (0.054)       | .30   | 3.59 (2.01) |
|                                 | Item 6                           | .63 (0.041)       | .57   | 3.12 (1.97) |
| Item 7                          |                                  | .63 (0.049)       | .40   | 3.52 (2.05) |
| Item 8                          |                                  | .71 (0.041)       | .51   | 3.38 (1.91) |
|                                 | Item 9                           | .76 (0.043)       | .49   | 3.72 (2.06) |
| Item 10                         |                                  | .79 (0.034)       | .63   | 3.51 (2.03) |

Abbreviations: BPD, borderline personality disorder; ERQ, Emotion Regulation Questionnaire; SD, standard deviation; SE, standard error.

**TABLE 7** Correlations between ERQ and the different measuring instruments the sample with participants with BPD

|                           | ERQ                   |                       |
|---------------------------|-----------------------|-----------------------|
|                           | Cognitive reappraisal | Emotional suppression |
| DERS                      |                       |                       |
| Inattention               | -.10                  | .06                   |
| Emotional rejection       | -.270*                | .01                   |
| Emotional confusion       | -.302**               | .061                  |
| Emotional interference    | -.437**               | .002                  |
| Emotional lack of control | -.457**               | .068                  |
| DERS total score          | -.441**               | .007                  |
| BSL-23                    | -.351**               | .288**                |

Abbreviations: BPD, borderline personality disorder; BSL-23, Borderline Symptom List; DERS, Difficulties in Emotion Regulation Scale; ERQ, Emotion Regulation Questionnaire.

\* $p \leq .05$ .

\*\* $p \leq .01$ .

### 3.2.2 | Construct validity

As Table 7 reveals, the cognitive reappraisal subscale shows a low and negative correlation with emotional rejection and a moderate and negative correlation with emotional confusion, emotional interference, emotional lack of control, and the total score on the DERS, as

well as with the BSL-23. However, the cognitive reappraisal subscale was not related to the DERS inattention subscale. The emotional suppression subscale only shows a low and positive correlation with the BSL-23. The emotional suppression subscale was not related to the DERS.

## 4 | DISCUSSION

The aim of the present study was to confirm the factor structure of the Spanish version of the ERQ and analyse its psychometric properties in a clinical sample of Spanish participants with personality disorders and a subsample of participants with BPD. The secondary objectives were to analyse the associations between the ERQ factors and the DERS (Gratz & Roemer, 2004) and the Borderline Symptoms List (BSL-23) (Bohus et al., 2009).

Regarding the first aim, the two-factor model for the ERQ (Cognitive Reappraisal and Expressive Suppression) showed an acceptable fit, similar to the original structure (Gross & John, 2003), in the overall sample of participants with personality disorders and in the subsample of participants with BPD. Thus, our results support this structure, coinciding with studies that have validated the questionnaire in different populations (Abler & Kessler, 2009; Balzarotti et al., 2010; Cabello et al., 2013; Christophe et al., 2009; Eldeleklioglu & Eroglu, 2015; Enebrink et al., 2013; Hasani, 2017; Westerlund & Santtila, 2018). Therefore, this is the first study to perform a CFA of the ERQ in participants with personality disorders and participants with BPD.

Regarding reliability, the scale showed good internal consistency in the two factors, with acceptable Cronbach's alpha values. This result is consistent with the Spanish validation (Cabello et al., 2013) in a nonclinical sample, suggesting that this scale is appropriate for samples of people with personality disorders and BPD.

Regarding convergent validity, our results showed that, as expected, the ERQ was associated with the DERS and the BSL-23 in the overall sample and in the subsample of participants with BPD. Gross and John (2003) propose in their model that the cognitive reappraisal factor is considered an adaptive emotion regulation strategy; therefore, we expected the correlations between cognitive reappraisal and the DERS factors to be negative. Supporting this hypothesis, our results showed a low to moderate and negative correlation between the cognitive reappraisal factor and the Spanish version of the DERS subscales (emotional rejection, emotional confusion, emotional interference, emotional lack of control) and the total DERS score. In addition, the results showed a low and negative correlation with the BSL-23. These results show that BPD symptoms could be associated with a lack of emotion dysregulation skills (Daros et al., 2020; Linehan, 1993). Specifically, previous studies found that cognitive re-evaluation was associated with deficits in voluntarily decreasing aversive emotions by means of cognitive reappraisal in people with BPD (Schulze et al., 2011).

The expressive suppression subscale has a low and positive correlation with the BSL-23. These results are theoretically expected because different authors (e.g., Linehan, 1995; Zanarini et al., 1989) suggest that the nonexpression of emotions is an emotional coping strategy that maintains the main behavioural and emotional symptoms of people with BPD.

Regarding the association between the Expressive Suppression factor and the DERS factors, the results showed that the Expressive Suppression factor did not correlate with the DERS. A previous study (Bjureberg et al., 2016) found that expressive suppression had a low and positive association with the DERS. There could be several reasons for this result. The first would be the sample size. Although our sample size is sufficient to find medium and large effect sizes, it is possible that with a larger sample, we would have found a low association, as in the previous study. Second, our study is the first one carried out with a clinical sample of participants with personality disorders. It is possible that, in this clinical sample, the participants' low expression of emotions might not be associated with emotion dysregulation or emotional lack of control, which is precisely what the DERS assesses. We suggest that patients with BPD may be less emotionally out of control when they do not express their emotions intensely. By contrast, in some cases, not expressing intense emotions could lead to emotional and behavioural lack of control. Thus, it is possible that this association between expressive suppression and emotional lack of control in participants with BPD is mediated by the intensity of the emotions (Linehan, 1995). Therefore, future studies should analyse whether emotional intensity mediates the relationship between expressive suppression and emotional lack of control.

Finally, the results showed that all the associations between the ERQ factors and the DERS subscales and the BSL were similar in

the two samples (the overall sample of participants with personality disorders and the subsample of participants with BPD), except the negative association between cognitive reappraisal and emotional confusion, which was higher in the BPD subsample (moderate association) than in the overall sample (low association). This might be because people with BPD have high emotional confusion, which is associated with a deficit in the cognitive regulation of emotions (Linehan, 1993, 1995).

One strength of this study is that, to our knowledge, it is the first study to analyse the factorial structure and psychometric characteristics of the ERQ in a population of people with personality disorders and participants with BPD. The sample was obtained from mental health services, and most of the patients had psychiatric comorbidities. Hence, it is a representative sample of patients who request treatment in mental health services.

Fortunately, we have good instruments that measure emotion regulation in the general population, such as the ERQ or the DERS. However, it is very important to create and disseminate assessment instruments for people with personality disorders because there is a lack of properly validated measures specifically for personality disorder, where the basis of the problem is emotion dysregulation. Therefore, it would be advantageous to continue to validate these and other emotion regulation instruments, such as the DERS, in this population.

Our study has several limitations. The first limitation is that it was not possible to perform a test-retest feasibility analysis to examine the stability of the measurements. Furthermore, because the sample was mainly composed of women, it was not possible to study invariance between men and women. Future studies should carry out an invariance study based on gender. Another limitation is that the associations found between the ERQ factors and the DERS or BSL-23, although significant, are low or moderate. However, these low to moderate associations with other measures are similar to those found in studies carried out in the general population to study the psychometric characteristics of the ERQ with other measures of emotions (e.g., Abler & Kessler, 2009; Christophe et al., 2009). Thus, it is possible that other variables act as mediators or moderators, and so future studies will have to analyse their role. Finally, all the participants were Spanish, White, and Caucasian. It is possible that the European culture has characteristics in the expression of emotions that are different from those of other cultures, such as the Asian culture (Soto et al., 2011). For this reason, our results are not generalizable to other cultures with different forms of emotional expression (e.g., Asian countries). Future studies should analyse the invariance of the ERQ structure in a transcultural sample.

Despite these limitations, the results of this study suggest that the ERQ is a reliable and valid instrument to evaluate the regulation of emotions in participants with personality disorders and BPD.

## CONFLICT OF INTEREST

All co-authors have revised and agree with the contents of the manuscript and there is no financial interest to report.

## FUNDING INFORMATION

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## DATA AVAILABILITY STATEMENT

Data available are on request due to privacy/ethical restrictions.

## ORCID

José H. Marco  <https://orcid.org/0000-0002-1545-6452>

Sara Fonseca  <https://orcid.org/0000-0001-5801-8172>

## REFERENCES

- Abler, B., & Kessler, H. (2009). Emotion Regulation Questionnaire—A German version of the ERQ by Gross and John. *Diagnostica*, 55(3), 144–152. <https://doi.org/10.1026/0012-1924.55.3.144>
- APA. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*. Washington, DC: American Psychiatric Association.
- Baker, J., & Berenbaum, H. (2008). The efficacy of problem-focused and emotional approach interventions varies as a function of emotional processing style. *Cognitive Therapy and Research*, 32(1), 66–82. <https://doi.org/10.1007/s10608-007-9129-y>
- Balzarotti, S., John, O. P., & Gross, J. J. (2010). An Italian adaptation of the Emotion Regulation Questionnaire. *European Journal of Psychological Assessment*, 26(1), 61–67. <https://doi.org/10.1027/1015-5759/a000009>
- Beath, A., Jones, M., & Fitness, J. (2015). Predicting distress via emotion regulation and coping: Measurement variance in trait EI scales. *Personality and Individual Differences*, 84, 45–51. <https://doi.org/10.1016/j.paid.2014.12.015>
- Bjureberg, J., Ljótsson, B., Tull, M., Hedman, E., Sahlin, H., Lundh, L., Bjärehed, J., DiLillo, D., Messman-Moore, M., Hellner, C., & Gratz, K. (2016). Development and validation of a brief version of the Difficulties in Emotion Regulation Scale: The DERS-16. *Journal of Psychopathology and Behavioral Assessment*, 38(2), 284–296. <https://doi.org/10.1007/s10862-015-9514-x>
- Bohus, M., Kleindienst, N., Limberger, M., Stieglitz, R., Domsalla, M., Chapman, A., Steil, R., Philipsen, A., & Wolf, M. (2009). The short version of the Borderline Symptom List (BSL-23): Development and initial data on psychometric properties. *Psychopathology*, 42(1), 32–39. <https://doi.org/10.1159/000173701>
- Botsford, J., Schulze, L., Bohländer, J., & Renneberg, B. (2019). Interpersonal trust: Development and validation of a self-report inventory and clinical application in patients with borderline personality disorder. *Journal of Personality Disorders*, 1–22. [https://doi.org/10.1521/pedi\\_2019\\_33\\_462](https://doi.org/10.1521/pedi_2019_33_462)
- Cabello, R., Salguero, J. M., Fernández-Berrocá, P., & Gross, J. J. (2013). A Spanish adaptation of the Emotion Regulation Questionnaire. *European Journal of Psychological Assessment*, 29(4), 234–240. <https://doi.org/10.1027/1015-5759/a000150>
- Christophe, V., Antoine, P., Leroy, T., & Delelis, G. (2009). Assessment of two emotional regulation processes: Expressive suppression and cognitive reevaluation. *European Review of Applied Psychology*, 59(1), 59–67. <https://doi.org/10.1016/j.erap.2008.07.001>
- Clarkin, J. F., Hull, J. W., Cantor, J., & Sanderson, C. (1993). Borderline personality disorder and personality traits: A comparison of SCID-II BPD and NEO-PI. *Psychological Assessment*, 5(4), 472–476. <https://doi.org/10.1037/1040-3590.5.4.472>
- Costa, J., Marôco, J., Pinto-Gouveia, J., Ferreira, C., & Castilho, P. (2016). Validation of the psychometric properties of the Self-Compassion Scale. Testing the factorial validity and factorial invariance of the measure among borderline personality disorder, anxiety disorder, eating disorder and general populations. *Clinical Psychology & Psychotherapy*, 23(5), 460–468. <https://doi.org/10.1002/cpp.1974>
- Daros, A., Rodrigo, A., Norouzian, N., Darboh, B., McRae, K., & Ruocco, A. (2020). Cognitive reappraisal of negative emotional images in borderline personality disorder: Content analysis, perceived effectiveness, and diagnostic specificity. *Journal of Personality Disorders*, 34(2), 199–215. [https://doi.org/10.1521/pedi\\_2018\\_32\\_390](https://doi.org/10.1521/pedi_2018_32_390)
- 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. <https://doi.org/10.1016/j.paid.2015.06.011>
- Eldeleklioglu, J., & Eroglu, Y. (2015). A Turkish adaptation of Emotion Regulation Questionnaire. *International Journal of Human Sciences*, 12(1), 1157–1168. <https://doi.org/10.14687/ijhs.v12i1.3144>
- Enebrink, P., Björnsdotter, A., & Ghaderi, A. (2013). The Emotion Regulation Questionnaire: Psychometric properties and norms for Swedish parents of children aged 10–13 years. *Europe's Journal of Psychology*, 9(2), 289–303. <https://doi.org/10.5964/ejop.v9i2.535>
- English, T., John, O. P., & Gross, J. J. (2013). Emotion regulation in close relationships. In J. A. Simpson & L. Campbell (Eds.), *Oxford library of psychology. The Oxford handbook of close relationships* (pp. 500–513). Oxford University Press.
- First, M., Spitzer, R., Gibbon, M., & Williams, J. B. (1999). Entrevista clínica estructurada para los trastornos del eje I del DSM-IV: SCID-I. Versión Clínica. Ed. Masson. Barcelona.
- First, M., Spitzer, R., Gibbon, M., & Williams, J. B. (2002). Structured clinical interview for DSM-IV-TR axis I disorders, research version, patient edition (pp. 94–1). New York, NY, USA.
- First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B. W., & Benjamin, L. S. (1997). *Structured clinical interview for DSM-IV Axis II personality disorders, (SCID-II)*. Washington: American Psychiatric Press.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26(1), 41–54. <https://doi.org/10.1007/s10862-008-9102-4>
- Gross, J., & Barrett, L. (2011). Emotion generation and emotion regulation: One or two depends on your point of view. *Emotion Review*, 3(1), 8–16. <https://doi.org/10.1177/1754073910380974>
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2(3), 271–299. <https://doi.org/10.1037/1089-2680.2.3.271>
- Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion*, 13(5), 551–573. <https://doi.org/10.1080/026999399379186>
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348–362. <https://doi.org/10.1037/0022-3514.85.2.348>
- Hasani, J. (2017). Persian version of the Emotion Regulation Questionnaire: Factor structure, reliability and validity. *International Journal of Behavioral Sciences*, 10, 156–161.
- Hervás, G., & Jódar, R. (2008). Adaptación al castellano de la Escala de Dificultades en la Regulación Emocional [the Spanish version of the Difficulties in Emotion Regulation Scale]. *Clínica Y Salud*, 19(2), 139–156.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- IBM Corp. (2017). *IBM SPSS Statistics for Windows, Version 25.0*. Armonk, NY: IBM Corp.
- Jackson, D. C., Mueller, C. J., Dolsky, I., Dalton, K. M., Nitschke, J. B., Urry, H. L., Rosenkranz, M., Ryff, D., Singer, B., & Davidson, R. J. (2003). Now you feel it, now you don't: Frontal brain electrical asym-

- metry and individual differences in emotion regulation. *Psychological Science*, 14, 612–617. <https://doi.org/10.1046/j.0956-7976.2003.psci.1473.x>
- John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality*, 72(6), 1301–1333. <https://doi.org/10.1111/j.1467-6494.2004.00298.x>
- John, O. P., & Gross, J. J. (2007). Individual differences in emotion regulation. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 351–372). The Guilford Press.
- Linehan, M. M. (1993). *Diagnosis and treatment of mental disorders. Cognitive-behavioral treatment of borderline personality disorder*. Guilford Press.
- Linehan, M. M. (1995). *Understanding borderline personality disorder: The dialectic approach manual*. New York: Guilford Press.
- Lobbetael, J., Leurgans, M., & Arntz, A. (2011). Inter-rater reliability of the Structured Clinical Interview for DSM-IV Axis I disorders (SCID I) and Axis II disorders (SCID II). *Clinical Psychology & Psychotherapy*, 18(1), 75–79. <https://doi.org/10.1002/cpp.693>
- Muthén, L. K., & Muthén, B. O. (2011). *Mplus user's guide* (Sixth ed.). Los Angeles, CA: Muthén & Muthén.
- Ochsner, K., & Gross, J. J. (2008). Cognitive Emotion Regulation: Insights from social cognitive and affective neuroscience. *Current Directions in Psychological Science*, 17(2), 153–158. <https://doi.org/10.1111/j.1467-8721.2008.00566.x>
- Ochsner, K. N., Bunge, S. A., Gross, J. J., & Gabrieli, J. D. E. (2002). Rethinking feelings: An fMRI study of the cognitive regulation of emotion. *Journal of Cognitive Neuroscience*, 14(8), 1215–1229. <https://doi.org/10.1162/089892902760807212>
- Opitz, P. C., Lee, I. A., Gross, J. J., & Urry, H. L. (2014). Fluid cognitive ability is a resource for successful emotion regulation in older and younger adults. *Frontiers in Psychology*, 5, 609. <https://doi.org/10.3389/fpsyg.2014.00609>
- Rothbart, M. K., Ziaie, H., & O'Boyle, C. G. (1992). Self-regulation and emotion in infancy. In N. Eisenberg & R. A. Fabes (Eds.), *New directions for child development*, no. 55: *The Jossey-Bass education series. Emotion and its regulation in early development* (Vol. 1992) (pp. 7–23). Jossey-Bass. <https://doi.org/10.1002/cd.23219925503>
- Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2000). Factor analysis of the DSM-III-R borderline personality disorder criteria in psychiatric inpatients. *The American Journal of Psychiatry*, 157(10), 1629–1633. <https://doi.org/10.1176/appi.ajp.157.10.1629>
- Schulze, L., Domes, G., Krüger, A., Berger, C., Fleischer, M., Prehn, K., Schmahl, C., Grossmann, A., Hauenstein, K., & Herpertz, S. (2011). Neuronal correlates of cognitive reappraisal in borderline patients with affective instability. *Biological Psychiatry*, 69(6), 564–573. <https://doi.org/10.1016/j.biopsych.2010.10.025>
- Soler, J., Vega, D., Feliu-Soler, A., Trujols, J., Soto, A., Elices, M., Ortiz, C., Pérez, V., Bohus, M., & Pascual, J. C. (2013). Validation of the Spanish version of the Borderline Symptom List, short form (BSL-23). *BMC Psychiatry*, 13, 1317. <https://doi.org/10.1186/1471-244X-13-139>
- Soto, J. A., Perez, C. R., Kim, Y.-H., Lee, E. A., & Minnick, M. R. (2011). Is expressive suppression always associated with poorer psychological functioning? A cross-cultural comparison between European Americans and Hong Kong Chinese. *Emotion*, 11(6), 1450–1455. <https://doi.org/10.1037/a0023340>
- Srivastava, S., Tamir, M., McGonigal, K. M., John, O. P., & Gross, J. J. (2009). The social costs of emotional suppression: A prospective study of the transition to college. *Journal of Personality and Social Psychology*, 96(4), 883–897. <https://doi.org/10.1037/a0014755>
- Stanton, A. L., Kirk, S. B., Cameron, C. L., & Danoff-Burg, S. (2000). Coping through emotional approach: Scale construction and validation. *Journal of Personality and Social Psychology*, 78(6), 1150–1169. <https://doi.org/10.1037/0022-3514.78.6.1150>
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development*, 59(2–3), 25–52. <https://doi.org/10.2307/1166137>
- Westerlund, M., & Santtila, S. (2018). A Finnish adaptation of the emotion regulation questionnaire (ERQ) and the difficulties in emotion regulation scale (DERS-16). *Nordic Psychology*, 70(1), 1–20. <https://doi.org/10.1080/19012276.2018.1443279>
- Zanarini, M. C., Gunderson, J. G., Frankenburg, F. R., & Chauncey, D. L. (1989). The revised Diagnostic Interview for Borderlines: Discriminating BPD from other Axis II disorders. *Journal of Personality Disorders*, 3(1), 10–18. <https://doi.org/10.1521/pedi.1989.3.1.10>

**How to cite this article:** Marco, J. H., Fernandez-Felipe, I., Fonseca, S., Garcia-Palacios, A., Baños, R., & Guillen, V. (2021). Confirmatory factor analysis and psychometric properties of the Emotion Regulation Questionnaire in participants with personality disorders. *Clinical Psychology & Psychotherapy*, 1–9. <https://doi.org/10.1002/cpp.2605>