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BEHAVIORAL EMOTION REGULATION QUESTIONNAIRE (BERQ): A PRELIMINARY VALIDATION STUDY OF THE PORTUGUESE VERSION

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The present study aimed to translate the Behavioral Emotion Regulation Questionnaire (BERQ) into European Portuguese and to explore its (factor) structure and reliability. The sample consisted of 469 Portuguese higher education students, aged between 18 and 63 years (M = 21.99, SD = 5.978). A Principal Component Analysis and a Confirmatory Factor Analysis was conducted. The BERQ subscales showed adequate internal consistency values (α = .72 ~ .91). The original five-dimensional structure (Seeking Distraction, Withdrawing, Actively Approaching, Seeking Social Support, and Ignoring), each with four items, was confirmed. The results suggest that the Portuguese version of the BERQ is a psychometrically reliable measure of behavioral emotion regulation.

Keywords: *Behavioral Emotion Regulation Questionnaire, emotion regulation, reliability, validation.*

CHESTIONAR DE REGLARE A EMOȚIILOR COMPORTAMENTALE (CREC): UN STUDIU PRELIMINAR DE VALIDARE ÎN VERSIUNEA PORTUGEZĂ

Prezentul studiu și-a propus să traducă Chestionarul de reglementare a emoțiilor comportamentale (CREC) în portugheză europeană și să exploreze structura și fiabilitatea (factorială) a acestuia. Eșantionul a fost format din 469 studenți portughezi de învățământ superior, cu vârste cuprinse între 18 și 63 de ani (M = 21,99, SD = 5,978). A fost efectuată o analiză a componentelor principale și o analiză factorială de confirmare. Subscalele BERQ au arătat valori de consistență internă adecvate (α = .72 ~ .91). Structura originală cinci-dimensională (căutarea distracției, retragerea, abordarea activă, căutarea sprijinului social și ignorarea), fiecare cu patru elemente, a fost confirmată. Rezultatele sugerează că versiunea portugheză a BERQ este o măsură fiabilă din punct de vedere psihometric a reglării emoțiilor comportamentale.

Cuvinte-cheie: *chestionar de reglare a emoțiilor comportamentale, reglare a emoțiilor, fiabilitate, validare.*

Emotion regulation is an emerging variable in mental health research [1] due to its importance in psychological assessment and intervention in different psychopathologies and negative life situations [2, 3].

Literature guidelines indicate that behavioral and cognitive emotion regulation strategies should be evaluated separately since they are distinct processes [4]. Following these directions, two complementary instruments were developed: the Cognitive Emotion Regulation Questionnaire (CERQ) [4] and the Behavioral Emotion Regulation Questionnaire (BERQ) [5], both concerning the assessment of negative and/ or stressful life events through cognitive or behavioral coping strategies.

In Portugal, advances in the field of emotion regulation seem to follow the interest and progress of international research. Regarding psychological assessment tools, there are some examples of culturally validated questionnaires, such as the Difficulties in Emotion Regulation Scale [6, 7] and the CERQ [8], previously mentioned. Once the CERQ is already validated and the relevance of distinct assessment tools of cognitive and behavioral emotional regulation, we introduce a preliminary validation study of the Portuguese version of the BERQ. The BERQ is also validated to the Chinese [9], Turkish [10], Persian [11] and Hindi [12] populations.

Method

Participants

The sample consisted of 469 Portuguese higher education students (83.6% female). Participants ranged from 18 to 63 years of age (M = 21.99, SD = 5.978), 59.1% were single and the majority (85.1%) were full time students.

Measures

Behavioral Emotion Regulation Questionnaire

The BERQ is a self-report measure consisting of five subscales (Seeking Distraction, Withdrawing, Actively Approaching, Seeking Social Support, and Ignoring), each with four items. Participants rated each item based on a 5-point Likert scale ranging from 1 (*[almost] never*) to 5 (*[almost] always*). Item scores of each subscale were summed up, with scores ranging from 4 to 20. Subscales with higher scores indicate a propensity to use the respective coping strategies. In the original version of the BERQ, Cronbach's alphas ranged from .86 to .93 and test-retest reliability ranged from .47 to .75 [5].

In the present study, the participants responded to the questionnaire with the dispositional coping instructions ("*(…) indicate what you generally do, when you experience negative or unpleasant events.*"/ "*(…) pedimos que nos indique o que faz, de modo geral, quando surgem acontecimentos negativos e desagradáveis na sua vida.*").

Procedure

The original English version of the BERQ was translated into European Portuguese by a native English-speaking translator. Then, a master's student and four psychology professors with doctoral degrees back-translated the

preliminary Portuguese version. Lastly, the authors compared the original and back-translated version and made the necessary modifications. After conducting a pilot test, a small sample reported no misunderstandings of the final culturally validated Portuguese version. Data were collected between February and April 2021. Due to the Covid-19 pandemic, participants were recruited through social media and emails from higher education institutions across the country and answered the questionnaire on an online survey platform. Participation in the study was entirely voluntary and informed consent was obtained from all participants.

Data Analysis

The psychometric properties of the BERQ were analyzed using IBM SPSS Statistics (version 28) and IBM SPSS Amos (version 28) software. To study the factor structure of the BERQ, a Principal Component Analysis (PCA) with oblimin rotation was conducted. The internal consistency (Cronbach's alpha) of the subscales was calculated, as well as Pearson correlations between the subscales. In order to test whether the original factor structure fits the Portuguese version, a Confirmatory Factor Analysis (CFA) was carried out using the maximum likelihood estimation. Previously, the existence of outliers was verified through the Mahalanobis square distance and the normality through the asymmetry (Sk) and kurtosis (Ku) coefficients, as well as the assumptions related to multicollinearity, singularity and homoscedasticity, and the existence of linear relationships between items [13].The assessment of the model's fit quality was based on factor loadings, which presented values approximately equal to or greater than .50, and with statistical significance [14]. The reliability of each item and the chi-square adjustment test (χ^2) was also performed. Due to the high sensitivity of the chi-square test to the sample size, the absolute fit indices (χ^2/df), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) were calculated.

Results

Factor Structure

A PCA with oblimin rotation was conducted. The Kaiser-Meyer-Olkin result was .857, suggesting sampling adequacy [15], and Bartlett's test of sphericity was significant [$\chi^2(190) = 4811.4$, $p < .001$]^2.

Based on eigenvalues above 1 and on the scree plot, five factors which explained 70.2% of the variance were extracted. Communalities ranged from .60 (item 7) to .85 (item 19). All items had saturations above |.50| and on the hypothesized factors, except for item 6, which loaded (.536) on the hypothesized factor (Seeking Distraction) and (.643) on the Ignore factor.

The goodness-of-fit of the five-factor model is shown in Table 1. After the preliminary analysis of the CFA, none of the variables presented Sk (.036 ~ 1.146) and Ku (.213 ~ 1.117) values indicating violations of the normal distribution (|Sk| < 3 and |Ku| < 10) [16]. Outliers were identified with the squared Mahalanobis distance, which were initially excluded from the database. Since the removal of outliers did not lead to significant improvements to the initial model, the cases were reincluded. All measures of the factor model originally proposed showed an adequate fit ($\chi^2(160) = 526.82$ $p < .001$; $\chi^2/df = 3.293$; CFI = .922; TLI = .907; RMSEA = .07, 90% CI [. 063, .077]; SMSR = .758) and the five-factor structure was confirmed. According to the literature, the CFI and TLI values are considered adequate when greater than .90, the RMSEA and SRMR are considered acceptable up to .10 and the χ^2/df is acceptable between 2 and 5 [16].

Table 1. Fit Indices for the Confirmatory Factor Analyses

Model	χ^2	χ^2/df	CFI	TLI	RMSEA (90% CI)	SRMR
Original five-factor model	526.82*	3.293	.922	.907	.07 (.063; .077)	.758

Note. χ^2 = Chi-Square; χ^2/df = Model Fit; CFI = Comparative Fit Index; TLI = Tucker–Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

* $p < .05$.

The proposed model proves to be adequate, which is particularly visible through the adjustment indices, as specified in Table 1. The fact that there were no high modification indices, nor standardized residuals above 2.58 [17], indicates a good fit of the empirical model.

Correlations Between Subscales

Pearson correlations between the BERQ subscales (see Table 2) ranged from .04 (Seeking Social Support and Seeking Distraction) to .46 (Ignoring and Withdrawal). Except for the Seeking Distraction correlation with the subscales Withdrawal and Seeking Social Support, the remaining correlations were significant and showed weak to moderate magnitudes.

Table 2. Correlations Between BERQ Subscales

Subescales	1	2	3	4	5
1. Seeking Distraction	—				
2. Withdrawal	.07	—			
3. Actively Approaching	.18**	−.28**	—		
4. Seeking Social Support	.04	−.22**	.25**	—	
5. Ignoring	.37**	.46**	−.24**	−.26**	—

**$p < .01$.

Reliabilities of the Scales

The alpha reliabilities of the BERQ subscales were good to very good, ranging between .72 (Seeking Distraction) and .91 (Seeking Social Support).

Discussion

The present study aimed to translate the BERQ and to validate the factor structure of the Portuguese version obtained. To report the preliminary psychometric properties of the BERQ, a Principal Component Analysis and a Confirmatory Factor Analysis were conducted. Subsequently, the correlations between the BERQ subscales and the internal consistencies were calculated.

The BERQ subscales showed good to very good internal consistency values and the original five-factor factor structure was confirmed. Similarly, the other versions of the BERQ also confirmed its five-factor structure [9], [10], [11], [12]. Interestingly, item 6 ("*I set my worries aside by doing something else*") loaded onto two factors. We propose that this happened because the excerpt from the item "*I set my worries aside (...)*" has a convergent semantic value with the definition of the Ignore subscale, assuming that "setting aside" and "ignoring" can be understood as similar concepts. On the other hand, the statement part of the item "(...) *by doing something else*" has a meaning that converges with what the Seeking Distraction subscale intends to measure. In spite of that, we decided to maintain item 6 once it did not significantly modify the goodness-of-fit. Except for RMSEA and SRMR values, which have acceptable indices, all other indices indicate a good fit of the model. The results suggest that the Portuguese version

of the BERQ is a reliable measure and can be a useful instrument for the assessment of emotion regulation strategies.

The internal consistency values of the Portuguese version (α = .72 to .91) are slightly higher than those of the Turkish (α = .72 to .88), Chinese (α = .71 to .85), Persian (α = .59 to .78) and Hindi (α = .72 to .81) versions. Identically to the original version, as well as the Chinese, Persian and Hindi versions, the Portuguese version showed weak to moderate intercorrelations, suggesting that the subscales are relatively independent [5], [9], [11], [12].

Future research should analyze temporal stability and criterion-related validity, as well as different characteristics (e.g., different group ages), in order to support the design of tailored psychological interventions [5]. Finally, we suggest further studies in clinical settings, for more effective intervention plans.

The present study has some limitations, such as the data collection, which was entirely online and through self-report measures. We suggest that future studies consider other data collection approaches (e.g., interviews). Another limitation, which restricts the generalization of the results, is related to the sample – higher education students and mostly women.

Despite the limitations presented, the current study is important because it is the first to translate and attempt to validate a measure that only assesses behavioral emotion regulation in Portugal, and because it is complementary to the existent cognitive version. The BERQ is an important measure for both (1) clinical practice – specifically for the implementation of structured and effective intervention plans – and (2) research in the field of emotion regulation in Portugal, since emotion regulation is a frequent target of interventions to promote the socioemotional functioning and mental health of individuals of all ages [18]. In conclusion, our results suggest that the BERQ is a valid and reliable instrument that measures behavioral emotion regulation strategies.

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