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Factor structure and measurement invariance of the Difficulties Emotion Regulation Scale (DERS) in Spanish adolescents

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Abstract

Background: Emotion dysregulation is a unifying dimension of several psychopathological symptoms such as prolonged dysphoria, labile mood, high anger, persistent fear and excessive worry. Deficits in emotion regulation (ER), or emotion dysregulation, appear to be relevant to the development, maintenance, and promising treatment target in a broad range of mental disorders. The Difficulties in Emotion Regulation Scale (DERS) is the most comprehensive measure of emotion dysregulation to date, but the Spanish version has not been validated in adolescents. **Method:** A community sample of 642 Spanish adolescents aged 12-18 responded to the DERS. **Results:** Factor analysis suggested a six-factor solution, and strict measurement invariance across sex was achieved. Internal consistency for the subscales was moderate to satisfactory (.71-.88), except for Awareness (α = .62). We found some sex differences on subscale scores, with small effect sizes. **Conclusions:** The results obtained for the Spanish version of the DERS are promising for investigating emotion dysregulation in Spanish adolescents.

Keywords: Difficulties in Emotion Regulation Scale; emotional dysregulation; emotion regulation; factor structure; invariance.

Resumen

Estructura factorial e invariancia de la Escala de Dificultades en la Regulación Emocional (DERS) en adolescentes españoles. **Antecedentes:** la disregulación emocional es una dimensión unificadora de varios síntomas psicopatológicos como la disforia prolongada, el humor lábil, la alta ira, el temor persistente o la preocupación excesiva. Los déficits en la regulación de la emoción (RE) o disregulación emocional parecen ser relevantes para el desarrollo, mantenimiento y un destino prometedor de tratamiento de una amplia gama de trastornos mentales. La Escala de Dificultades en la Regulación Emocional (DERS) representa la medida más completa de RE hasta la fecha, pero la versión española no ha sido validada en adolescentes. **Método:** una muestra comunitaria de 642 adolescentes españoles entre 12 y 18 años respondió la DERS. **Resultados:** el análisis factorial sugirió una solución de seis factores y se alcanzó la invariancia estricta en función del sexo. La consistencia interna de las subescalas fue de moderada a satisfactoria (.71-.88), excepto para Conciencia (α = .62). Se hallaron algunas diferencias en las puntuaciones de las subescalas respecto al sexo, siendo los tamaños del efecto pequeños. **Conclusiones:** los resultados obtenidos para la versión española de la DERS son prometedores para la investigación de la RE en adolescentes españoles.

Palabras clave: Escala de Dificultades en la Regulación Emocional; estructura factorial; desregulación emocional; invariancia; regulación emocional.

Over the past two decades, there has been a significant growth in the number of studies on the relationship between mental health and emotional regulation (ER) difficulties or emotional dysregulation. Different authors have posited that emotion dysregulation is a predisposing vulnerability factor in the development of most forms of psychopathology (Berenbaum, Raghavan, Le, Vernon, & Gómez, 2003; Bradley, 2000; Ciccetti, Ackerman, & Izard, 1995; Cole & Deater-Deckard, 2009; Gratz & Roemer, 2004; Keenan, 2000), including internalizing problems such as anxiety (Mennin, Heinberg, Turk, & Fresco, 2002) and mood disorders (Gotlib, Joormann, Minor, & Cooney, 2006), as well as externalizing problems such as conduct disorder (Beauchine, Gazke-Koop, & Mead, 2007). Adolescence is an important developmental period for the study of associations between emotion dysregulation and psychopathology. During adolescence, both negative emotions (Larson & Lampman-Petraidis, 1989) and the variability of such emotions increases (Larson, Csikszentmiha, & Graef, 1980) compared to childhood and adulthood. Furthermore, the prevalence rates of internalizing (i.e., anxiety, depression) and externalizing problems (aggressive and rule-breaking behavior) rises in adolescence (Silk, Steinberg, & Morris, 2003). Nevertheless, compared to studies with children, research into emotion dysregulation in adolescence remains comparatively sparse, and one reason for this may be the limited number of available measures for adolescents (Zeman, Cassano, Perry-Parrish, & Stegall, 2006).

The growth of research in this field has been possible thanks to the desire to reach a consensus on the definition of the ER

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construct that went beyond the former partial definitions. For example, some partial definitions alluded to concepts such as the ability to eliminate and avoid negative emotions (Catanzaro & Mearns, 1990) or individual differences in the ability to reflect upon and manage one's emotions (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). Further studies of stress and coping referred to this concept by analyzing people's ability to use a wide range of coping strategies to decrease their discomfort. The available instruments based on these partial aspects include the Trait Meta Mood Scale (TMMS; Salovey et al., 1995), which has been validated in Spain (Fernández-Berrocal, Extremera, & Ramos, 2004); The Negative Mood Regulation (NMR; Catanzaro & Mearns,1990); The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), which has also been validated in Spain (Rodríguez-Carvajal, Moreno-Jiménez, & Garrosa, 2006); and the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2001), which only considers the cognitive components involved in ER.

Based on a review of the existing literature on the various conceptualizations and measurements of ER, Gratz and Roemer (2004) proposed a comprehensive definition of the construct. ER may be a multidimensional construct involving the following aspects: (a) awareness and understanding emotions, (b) acceptance of emotions, (c) ability to control impulsive behaviors and engage in goal-directed behaviors when experiencing negative emotions, and (d) ability to use situation-appropriate emotional regulation strategies flexibly to modulate emotional responses. On the basis of their integrative conceptualization of ER, Gratz and Roemer (2004) developed the Difficulties in Emotion Regulation Scale (DERS), a comprehensive measurement tool that adequately assesses both general and specific aspects of ER difficulties. The DERS is a 36-item self-report questionnaire originally comprising six scales: Awareness (lack of emotion awareness), Clarity (lack of emotional clarity), Impulse (difficulties controlling impulsive behaviors when distressed), Goals (difficulties engaging in goal-directed behaviors when distressed), Non-acceptance (non-acceptance of negative emotional responses), and Strategies (limited access to effective emotional regulation strategies).

Since its construction and subsequent validation for English-speaking adults, the DERS has been translated into several languages and applied to community samples and psychiatric patients. The scale has shown empirical support in adult samples from Korea (Cho, 2007), Germany (Ehring, Fischer, Schnülle, Bösterling, & Tuschen- Caffier, 2008), Spain (Hervás & Jodar, 2008), Portugal (Coutinho, Ribeiro, Ferreirinha, & Dias, 2009), Italy (Sighinolfi, Norcini, & Rocco, 2010), Turkey (Ruganci & Gencöz, 2010), and France (Côté, Gosselin, & Dagenais, 2013). In addition, it has been used in adolescent samples from different countries: the USA (Weinberg & Klonsky, 2009), Holland (Neumann, Van Lier, Gratz, & Koot, 2010), Mexico (Marín, Robles, González, & Andrade, 2012), and Colombia (Herrera, Niño, & Caycedo, 2008).

Although the DERS has shown good psychometric properties when measuring both adults' and adolescents' ER difficulties, some doubts remain about its internal structure. Some of the aforementioned studies in European adult samples (Côté et al., 2013; Coutinho et al., 2009; Ehring, et al., 2008; Ruganci & Gencöz, 2010; Sighinolfi et al., 2010) have replicated the original six-factor structure proposed by Gratz and Roemer (2004). However, several studies have mentioned the possibility of reducing the original six factors to five in Spain (Hervás & Jodar, 2008), the USA (Bardeen, Fergus, & Orcutt, 2012), India (Snow, Ward, Becker, & Raval, 2013), and Korea (Cho & Hong, 2013). The greatest discrepancy between studies is in the Awareness subscale. Cho and Hong (2013) claimed that Awareness and Clarity may actually be a single construct and should be pooled onto a single factor. Bardeen et al. (2012) removed Awareness because it may not represent the same higher-order ER construct as the other five DERS dimensions. Finally, in a Spanish adult sample, Hervás and Jodar (2008) proposed an internal structure based on five factors, maintaining Awareness, but pooling Impulse and Limited Strategies onto a single factor.

In studies with adolescents, confirmatory factor analysis (CFA) showed that the six-factor structure of the DERS fits the data acceptably in a Dutch community sample (Neumann et al., 2010) and in an American community (Pérez, Venta, Garnaat, & Sharp, 2012) and inpatient (Weinberg & Klonsky, 2009) samples, although some items showed factor loadings below .40 or crossloadings. However, Marín et al. (2012) failed to replicate the original six-factor structure in Mexican adolescents using both CFA and principal component analysis (PCA) and instead proposed a shorter four-factor model, in which the Impulse and Strategies items were either integrated into the remaining dimensions or removed. Nevertheless, to our knowledge, there is no published study on the internal structure of DERS among Spanish adolescents to date. Thus, it is important to provide empirical evidence on this issue for the specific population in which the test is going to be used (AERA, APA, & NCME, 1999). Regarding differential item functioning, only Neumann et al. (2010) have evaluated this point across sex and attained full weak measurement invariance (equivalence of all factor loadings), but failed to achieve full strong measurement invariance (non-equivalence of some item intercepts).

The purpose of this study is to provide evidence on factor structure and measurement invariance across sex, internal consistency, and the relationship between DERS scores and sex.

Method

Participants

An incidental sample of 653 adolescent students aged 12-18 from six schools from Barcelona (Spain) answered the questionnaire. Eleven were invalidated: seven by altered response patterns, three for students older than 18 and one for a participant with mental retardation. The characteristics of the final sample of 642 adolescents can be seen in Table 1.

Instruments

Questionnaire on sociodemographic data. Respondents filled in an *ad hoc* questionnaire to collect sociodemographic data.

The Spanish adolescent version of the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The original DERS is a 36-item self-report questionnaire measuring clinically relevant aspects of ER. As mentioned above, the items were originally grouped into six subscales: Awareness (6 items), Clarity (5 items), Impulse (6 items), Goals (5 items), Non-acceptance (6 items), and Strategies (8 items). The items are scored on a 5-point Likert scale (1: *almost never*, 5: *almost always).* Subscales and

Table 1
Sociodemographics of sample (N = 642)

Adolescent's age (mean; SD)		**15.42 (1.69)**
Sex (n; %)	Male	293 (45.6%)
	Female	349 (54.4%)
Level of education (*n*; %)	ESO	420 (65.4%)
	Upper-secondary	222 (34.6%)
Type of school (*n*, %)	Private	61 (9.5%)
	Public	53 (8.3%)
	Semi public	528 (82.2%)
Place of birth (*n*; %)	Spain	528 (82.4%)
	Asia	49 (7.6%)
	Latin America	48 (7.5%)
	Morocco	6 (0.9%)
	Others European countries	10 (1.6%)
Family's SES (Hollingshead, 1975) (*n*; %)	High	205 (33.0%)
	Medium-high	195 (31.4%)
	Medium	88 (14.1%)
	Medium-low	99 (15.9%)
	Low	35 (5.6%)

total scores are obtained by the sum of the corresponding items, after reversed when necessary, and higher scores indicate more difficulties in ER.

The scale's adaptation procedure took place using an iterative method (Muñiz, Elosua, & Hambleton, 2013) after obtaining permission from the author. The scale was already translated into Spanish in Spain (Hervás & Jodar, 2008), Mexico (Marín et al., 2012) and Colombia (Herrera, Niño, & Caycedo, 2008), but none of these versions was completely suitable for Spanish adolescents; thus, we drew from them to yield a version adapted to Spanish youth. Two experts in clinical psychology and one psychometrist reviewed all the versions and evaluated their comprehension, as well as their semantic, linguistic, and conceptual equivalence, and after modifying and adjusting the instructions and some items, a consensus was reached. Finally, the scale was administered to a pilot sample of 15 adolescents, who were also interviewed, and opinions concerning their understanding of the instructions and the wording of the items were taken into consideration. Some minor modifications to the Spanish version of the instrument resulted from this initial test (i.e., in some items, a short explanation was added in parentheses). See Table 2.

Table 2
Spanish version of the Difficulties Emotion Regulation Scale (DERS)

Por favor, indica cuántas veces te pasan las siguientes afirmaciones. Marca en cada frase el número correspondiente con una cruz, según la escala que aparece a continuación:

1	**2**	**3**	**4**	**5**
Casi nunca (0-10%)	**Algunas veces (11-35%)**	**La mitad de las veces (36-65%)**	**La mayoría de las veces (66-90%)**	**Casi siempre (91-100%)**

	1	**2**	**3**	**4**	**5**
1. Tengo claro lo que siento (tristeza, enfado, alegría…) [Clear about my feelings]					
2. Pongo atención a cómo me siento [Pay attention]					
3. Vivo mis emociones como agobiantes y fuera de control [Emotions overwhelming/out of control]					
4. No tengo ni idea de cómo me siento [No idea how feeling]					
5. Me cuesta entender mis sentimientos [Difficulty making sense]					
6. Estoy atento a mis sentimientos [Attentive to feelings]					
7. Sé exactamente cómo me estoy sintiendo [Know how feeling]					
8. Le doy importancia a lo que estoy sintiendo [Care about feeling]					
9. Estoy confuso sobre lo que siento [Confused about feelings]					
10. Cuando estoy molesto, sé reconocer cuáles son mis emociones (si es rabia, si es decepción…) [Acknowledge emotions]					
11. Cuando estoy molesto, me enfado conmigo mismo por sentirme de esa manera [Become angry]					
12. Cuando estoy molesto, me da vergüenza sentirme de esa manera [Become embarrassed]					
13. Cuando estoy molesto, me cuesta terminar el trabajo [Difficulty getting work done]					
14. Cuando estoy molesto, pierdo el control [Become out of control]					
15. Cuando estoy molesto, creo que estaré así durante mucho tiempo [Remain upset]					
16. Cuando estoy molesto, creo que acabaré sintiéndome muy deprimido [End up depressed]					
17. Cuando estoy molesto, creo que ese sentimiento es lo adecuado y que es importante [Feelings are valid and important]					
18. Cuando estoy molesto, me cuesta centrarme en otras cosas [Difficulty focusing]					
19. Cuando estoy molesto, me siento fuera de control [Feel out of control]					
20. Cuando estoy molesto, puedo conseguir hacer cosas igualmente [Still get things done]					
21. Cuando estoy molesto, me siento avergonzado de mí mismo por sentirme de esa manera [Feel ashamed]					
22. Cuando estoy molesto, sé que puedo encontrar alguna forma para conseguir finalmente sentirme mejor [Can find a way to feel better]					
23. Cuando estoy molesto, me siento como si fuera una persona débil [Feel weak]					
24. Cuando estoy molesto, creo que puedo controlar mi comportamiento [Remain in control]					
25. Cuando estoy molesto, me siento culpable por sentirme de esta manera [Feel guilty]					
26. Cuando estoy molesto, me cuesta concentrarme [Difficulty concentrating]					
27. Cuando estoy molesto, me cuesta controlar mi comportamiento [Difficulty controlling]					
28. Cuando estoy molesto, creo que no hay nada que pueda hacer para conseguir sentirme mejor [Nothing I can do]					
29. Cuando estoy molesto, me enfado conmigo mismo por sentirme de esa manera [Become irritated]					
30. Cuando estoy molesto, empiezo a sentirme muy mal conmigo mismo [Feel bad about self]					
31. Cuando estoy molesto, creo que recrearme en ello es todo lo que puedo hacer (como si disfrutase de ese malestar y no pensara en ponerle fin) [Can only wallow]					
32. Cuando estoy molesto, pierdo el control sobre mi comportamiento [Lose control]					
33. Cuando estoy molesto, me cuesta pensar sobre cualquier otra cosa [Difficulty thinking about anything else]					
34. Cuando estoy molesto, me doy un tiempo para comprender lo que estoy sintiendo realmente [Take time to figure out feelings]					
35. Cuando estoy molesto, tardo mucho tiempo en sentirme mejor [Delayed recovery]					
36. Cuando estoy molesto, mis emociones parecen desbordantes (escapan de mis manos) [Emotions overwhelming]					

Procedure

The heads of the participating schools and the children's caregivers received a complete description of the study. All students and their parents or legal guardians were informed of the purpose of the study and the voluntary nature of their participation. They were also assured of the confidentiality of their responses and were reminded of the importance of being honest in their responses. The questionnaires were collectively administered at the schools.

Data analysis

Previously, an analysis of missing values was performed. The item-mean substitution method was used at the scale level (Graham, 2009), rounding off to discrete values due to the low percentage of missing data (0.08%).

As previous research on factor structure of DERS is numerous, CFA was conducted with Mplus7 (Muthén & Muthén, 1998-2010), using weighted least squares means and variance (WLSMV) adjusted for the categorical data method of estimation, which handles floor and ceiling effects. First, five models were analyzed. (a) Model A: the 36-item and 6-factor model proposed by Gratz and Roemer (2004) in adults and replicated by Weinberg and Klonsky (2009) in adolescents, both in USA, using exploratory factor analysis (EFA) with the principal axis factoring method of extraction and oblique promax rotation. Based mainly on scree plot, they retained either 6 or 7 factors and concluded that the 6-factor solution was more conceptually interpretable. However, Weinberg and Klonsky (2009) found 9 items showing cross-loading, such as Item 30 (Strategies) also loading on Non-acceptance, Item 1 and 7 (Clarity) with cross-loadings on Awareness, and Item 3 (Impulse) and Item 23 (Non-acceptance) with higher or cross-loadings on Strategies.(b) Model B: proposed by Neumann et al., (2010) in Dutch adolescents using CFA; it differs from the expected Model A in that it also assumes that Item 33 (Goals) loads onto two factors (also on Strategies). (c) Model C: the 24-item and 4-factor model proposed by Marín et al. (2012) in Mexican adolescents, where the Strategies items were integrated into Non-acceptance, the Impulse items were mainly integrated into Goals, and two previous Clarity items (Item 1 and 7) were allocated on Awareness (the later aligned with Weinberg's cross-loadings results). This model was derived from PCA and varimax orthogonal rotation; the authors firstly considered 35 items and 7 components (without mentioning extraction criteria), and after removing 11 items with low or cross-loadings, they finally retained 4 components and 24 items (non-salient loadings not shown). (d) Model D: the 28-item and 5-factor model proposed by Hervás and Jodar (2008) in Spanish adults, in which Impulse and Strategies were integrated onto a single factor labeled "Lack of control" and Item 30 was included in Non-acceptance (instead of Strategies), attending also to its content. These authors used PCA and oblique promax rotation and after failing to replicate the original 36-item and 6-factor structure, they removed 8 items with low or cross-loadings and finally retained 5 components and 28 items (loadings <.40 not shown). (e) Finally, Model E is a 28-item and 6-factor model which retains the 28 items from Hervás' Spanish adult version (Model D) but considering the original 6 factors (as in Models A and B), Impulse and Strategies remaining as separate dimensions.

Goodness-of-fit was assessed with the common fit indices (Jackson, Gillaspy, & Purc-Stephenson, 2009): Chi-square (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). The following thresholds were considered: excellent fit for CFI and TLI > .95 and RMSEA <.05 (Hu & Bentler, 1999) and moderate fit for CFI and TLI >.90 and RMSEA <.08 (Marsh, Hau, & Wen, 2004). In addition to these cutoff criteria, fit comparison among non-nested models like ours was based on χ^2/df (Marsh, Hau, & Grayson, 2005), the smaller the better model fit.

Secondly, for the best-fitting model, measurement invariance across sex was evaluated following the common sequence (Vandenberg & Lance, 2000), as in Neumann et al. (2010). For comparisons between nested models, we considered a decrease in CFI greater than .01 as an indicator of a meaningful decrement in fit (Cheung & Rensvold, 2002).

Internal consistency of the derived scores was measured with Cronbach's alpha and mean inter-item correlation. Sex differences in scale scores were valued with Cohen's *d*.

Results

Item mean (and standard deviation) values ranged from 1.59 to 3.98 (0.92-1.40). Median (in absolute value) of skewness was 0.87 and median of kurtosis was 0.62.

Table 3
Goodness-of-fit indices and comparison of CFA and ESEM models

Model	Goodness-of-fit indices					Comparison	
	χ^2 (df)	χ^2/df	CFI	TLI	RMSEA (CI 90%)	Models	ΔCFI
Multigroup baseline models (equal form across sex)							
Model A (Weinberg): CFA 36-item and 6-factor	2613.3 (1158)	2.26	.886	.875	.063 (.059; .066)		
Model B (Neumann): CFA 36-item and 6-factor	2609.9 (1156)	2.26	.886	.875	.063 (.059; .066)		
Model C (Marín): CFA 24-item and 4-factor	1492.3 (492)	3.03	.876	.860	.080 (.075; .084)		
Model D (Hervás): CFA 28-item and 5-factor	1856.0 (680)	2.73	.895	.884	.073 (.069; .077)		
Model E (Hervás modified): CFA 28-item and 6-factor	1431.4 (670)	2.14	.932	.923	.060 (.055; .064)		
Model F (Weinberg): ESEM 36-item and 6-factor	1271.3 (858)	–	.967	.952	.039 (.034; .043)		
Measurement invariance across sex for model F (ESEM)							
Model F2: F plus equal factor loadings (weak invariance)	1417.0 (1038)	–	.970	.964	.034 (.029; 038)	F2 vs. F	.003
Model F 3: F2 plus equal thresholds (strong invariance)	1520.9 (1140)	–	.970	.967	.032 (.028; .036)	F3 vs. F2	.000
Model F 4: F3 plus equal uniquenesses (strict invariance)	1584.6 (1176)	–	.968	.966	.033 (.029; .037)	F4 vs. F3	–.002

None of the five configural models evaluated with CFA across sex showed excellent fit (Table 3, top). Despite Model E fitted slightly better (CFI and TLI >.90; lowest χ^2/df), confidence interval for RMSEA showed overlap with respect to Model A and B, which are more complex models, meaning they all worked similarly. Thus, we then conducted an Exploratory Structural Equation Modeling (ESEM; Asparouhov & Muthén, 2009) of the 36 initial items with MPlus7 using WLMSV method of estimation and oblique geomin rotation. In so doing, we allowed the initial estimation of the factor loadings of all items in all the factors. Fit

Table 4
Final ESEM model: Standardized factor loadings and factor correlations for girls (left) and boys (right)

Factor loadings[a]	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**
Awareness						
02. Pay attention (R)	**.70/.71**	−.13/−.12	−.01/−.01	−.06/−.04	.03/.04	.26/.26
06. Attentive to feelings (R)	**.70/.73**	−.02/−.02	−.08/−.07	.09/.07	−.05/−.05	.15/.15
08. Care about feelings (R)	**.58/.59**	−.08/−.08	−.00/−.00	.22/.17	.02/.02	−.01/−.01
10. Acknowledge emotions (R)	**.36/.38**	.01/.01	−.04/−.04	.18/.14	−.18/−.20	−.12/−.13
17. Feelings valid and important (R)	**.33/.34**	−.06/−.06	.04/.04	.19/.15	−.05/−.06	.22/.22
34. Take time to figure out feelings (R)	.29/**.30**	−.04/−.04	.08/.08	.11/.09	.05/.06	.09/.09
Impulse						
03. Emotions overwhelming/out of control	.02/.02	.25/.25	.05/.05	−.04/−.03	.15/.17	**.38/.38**
14. Become out of control	.01/.01	**.89/.89**	−.01/−.01	.02/.02	.03/.03	−.01/−.01
19. Feel out of control	−.05/−.06	**.73/.75**	.03/.03	.18/.15	−.07/−.09	−.00/−.00
24. Remain in control (R)	.20/.21	**−.44/−.44**	.16/.15	.02/.02	.03/.03	−.11/−.11
27. Difficulty controlling	.01/.02	**.73/.73**	−.03/−.03	.02/.02	.01/.01	.18/.19
32. Lose control	−.02/−.02	**.85/.85**	.02/.02	−.01/−.01	−.00/−.00	.08/.09
Non-acceptance						
11. Become angry	−.04/−.05	−.18/−.20	**.82/.81**	.10/.09	−.17/−.21	.04/.05
12. Become embarrassed	.01/.01	.06/.06	**.82/.77**	−.17/−.14	.05/.06	−.09/−.10
21. Feel ashamed	.02/.02	.04/.04	**.94/.88**	−.21/−.17	.01/.02	−.03/−.03
23. Feel weak	−.05/−.05	−.15/−.15	**.30**/.29	.23/.20	.08/.09	**.31/.34**
25. Feel guilty	−.03/−.03	−.05/−.06	**.81/.78**	−.09/−.01	−.07/−.09	.05/.06
29. Become irritated	.05/.06	.06/.06	**.71/.68**	.01/.01	−.13/−.15	.16/.17
30. Feel bad about self	.00/.00	−.05/−.05	**.65/.60**	.02/.01	.04/.05	.24/.26
Goals						
13. Difficulty getting work done	−.04/−.05	.02/.02	.17/.17	**.71/.66**	.00/.01	−.17/−.20
18. Difficulty focusing	.06/.08	.02/.02	.01/.09	**.80/.73**	−.01/−.01	.01/.01
20. Still get things done (R)	*.34/.40*	.03/.03	.02/.02	**−.58/−.52**	.20/.25	−.05/−.06
26. Difficulty concentrating	.01/.06	.06/.07	.01/.01	**.81/.74**	.08/.10	−.06/−.07
33. Difficulty thinking about anything else	.08/.10	.10/.11	−.01/−.01	**.70/.62**	.02/.03	.08/.09
Clarity						
01. Clear about feelings (R)	**.52/.55**	.02/.02	−.02/−.02	.07/.06	**−.40/−.45**	.06/.06
04. No idea how feeling	*−.39/−.42*	.06/.06	−.00/−.00	.03/.02	**.55/.63**	.02/.02
05. Difficulty making sense	−.28/*−.31*	.03/.03	.18/.17	.05/.04	**.42/.49**	.08/.09
07. Know how feeling (R)	**.60/.64**	.08/.08	.02/.02	−.05/−.04	**−.38/−.43**	−.04/−.04
09. Confused about feelings	−.23/−.25	−.06/−.06	.18/.17	.04/.03	**.40/.45**	.12/.12
Strategies						
15. Remain upset	−.00/−.00	.10/.11	−.02/−.02	.19/.16	−.01/−.01	**.50/.52**
16. End up depressed	.02/.02	.03/.03	.15/.13	−.01/−.01	.15/.16	**.58/.58**
22. Can find a way to feel better (R)	*.30/.32*	−.00/−.00	.12/.11	.02/.02	.15/.17	**−.52/−.54**
28. Nothing I can do	−.04/−.04	.10/.10	.07/.06	.09/.07	−.18/−.21	**.62/.66**
31. Can only wallow	.06/.06	.10/.10	.15/.13	.01/.01	.18/.20	.29/.29
35. Delayed recovery	−.07/−.08	.14/.15	.05/.05	.28/.24	.03/.04	**.34/.37**
36. Emotions overwhelming	−.00/−.00	.23/.23	.04/.04	.22/.19	.17/.20	**.33/.34**
Factor correlations[b]	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**
F1 (Awareness)	1					
F2 (Impulse)	−.21*/.02	1				
F3 (Non-acceptance)	−.21/.25	.44**/.26**	1			
F4 (Goals)	−.19/.14	.46**/.44**	.48**/.25**	1		
F5 (Clarity)	−.02/.17	.12/.05	.40**/.42**	.21/.22*	1	
F6 (Strategies)	−.29*/−.11	.34**/.31	.52**/.58**	.50**/.33**	.21*/.36**	1

Note: Items with (R) are inverse.
[a] Salient loadings are in bold; second highest loadings ≥.30 onto another scale than expected are in italics when the difference with the primary expected loading is above .10. Shaded cells indicate the factor in which the scale was assigned, taken into account the content.
[b] For factor correlations: * p<.05; ** p<.01

indices for this 36-item and 6-factor ESEM model (Model F) were satisfactory (CFI and TLI >.95; RMSEA <.05).

Therefore, we selected this 36-item and 6-factor ESEM model, and weak (ΔCFI = .003), strong (ΔCFI = .000), and strict (ΔCFI = –.002) measurement invariance was achieved (Table 3, bottom). Fit for this final fully invariant model (Model F4 in Table 3) was satisfactory: CFI = .968; TLI = .966; RMSEA = .033.

Standardized parameters are shown in Table 4. The pattern of salient factor loadings is mostly coherent with expectations and their sign is consistent with the wording of the items. Thirty items showed factor loadings higher than .30 on their intended factors and two more items (31 and 34) almost reached this criterion (.29). Item 3 (Impulse) and Item 23 (Non-acceptance) showed cross-loadings on Strategies and Item 1 and 7 (Clarity) showed higher loadings on Awareness than in their expected factor, but all values were above .30. Finally, attending to its wording, salient loading, and contribution to internal consistency, we allocated Item 30 to Non-acceptance, like Hervás and Jodar (2008). Consistent with prior studies, Awareness tended to share small intercorrelations with the other DERS factors (*r*s ranging from –.29 to .25), whereas the greatest factor correlation was between Non-acceptance and Strategies (r = .58 for males and r = .52 for females).

All DERS scale scores also had adequate internal consistency (Table 5, left), except Awareness (α = .62; mean inter-item r = .22). No sex differences were found for Awareness, Impulse, Non-acceptance, Goals, and the total score, whereas females reported slightly higher levels of lack of Clarity and limited Strategies, although effect sizes were small (Cohen's d ≤0.23) (Table 5, right).

Discussion

Findings from CFAs revealed that our proposal to keep the 28 items from the Spanish adult version by Hervás and Jodar (2008) but allocating them into the six original factors, as in previous adolescent samples (Neumann et al., 2010; Weinberg & Klonsky, 2009), showed slightly better but insufficient fit than the other models analyzed. Thus, we switched to an exploratory approach using ESEM and we obtained six highly interpretable factors, as most of the items loaded clearly on their expected factors. The four most problematic items worked similarly in Weinberg and Klonsky's EFA results. And even Marín et al. (2012) allocated two of them (Clarity items 1 and 7) to a different component (Awareness) based on PCA. However, we decided to maintain them in their original factor (Gratz & Roemer, 2004), because they both also loaded above .30 and contributed to the internal consistency of their expected scale (α if item removed would drop to <.70).

Our findings also suggest that Impulse and Strategies are distinguishable dimensions, since factor correlation was moderate (r = .31 for males and r = .34 for females), in contrast to the proposal by Hervás and Jodar (2008), who unified both into a single factor labeled "Loss of control". Likewise, in contrast to the proposal by Cho and Hong (2013), who pooled Awareness and Clarity, the factor correlation between both was very low ($r \leq$ /.17/), indicating that there is no single underlying construct.

In relation to the proposal by Bardem et al. (2012), who removed Awareness because it may not represent the same higher-order ER construct as the other five DERS dimensions, we believe that this construct has a longstanding tradition in the literature, and there are even questionnaires dedicated specifically to it (i.e., Emotional Awareness Questionnaire; Rieffe et al., 2007, "Lack of Emotional Awareness" scale of the Emotion Expression Scale for Children; Penza-Clyve, & Zeman, 2002). However, this scale score showed low internal consistency, whereas the remaining scale scores were adequately reliable, as previously found in adults (Gratz & Roemer, 2004; Marín et al., 2012) and adolescents (Neumann et al., 2010; Weinberg & Klonsky, 2009).

Furthermore, strict factorial invariance across sex was found. To date, only one study has analyzed it in a sample of adolescents (Neumann et al., 2010), achieving full strong invariance for only three of the six subscales: Clarity, Impulse, and Strategies. Evidence of measurement invariance suggests that sex differences in mean levels can be attributed to true differences in self-reports of ER difficulties. There were no differences between males and females on the overall DERS scores, whereas differences for some subscales were found, effect sizes being small or almost null. Previous studies reporting sex differences on DERS scores (Gratz & Roemer, 2004; Hervás & Jodar, 2008; Neumann et al., 2010; Weinberg & Klonsky, 2009) also found small effect sizes (Cohen's d <0.50 in absolute value).

Although emotion dysregulation has predominantly been researched with adults, recent studies have begun to demonstrate the utility of these measures with younger samples (Marín et al., 2012; Neumann et al., 2010; Weinberg & Klonsky, 2009). The reason behind the low number of studies on the subject in Spain compared to, for example, the United States especially might be the lack of a suitable measuring instrument. However, our study does have some limitations: we used an incidental sample; thus, further studies in Spain should assess the adequacy of our proposal

Table 5
Internal consistency and means (and standard deviations) for DERS scale scores among females (n = 349) and males (n = 293)

Scale	Cronbach's α (mean inter-item correlation)	No. items (minimum ÷ maximum)	Overall	Females	Males	Comparison (Cohen's d effect size)
Awareness	.62 (.22)	6 (6 ÷ 30)	16.07 (4.39)	15.84 (4.27)	16.34 (4.52)	-0.12
Impulse	.81 (.42)	6 (6 ÷ 30)	12.80 (5.35)	12.43 (5.23)	13.24 (5.47)	-0.15
Non-acceptance	.84 (.44)	7 (7 ÷ 35)	14.02 (6.18)	14.12 (6.26)	13.90 (6.10)	0.04
Goals	.80 (.44)	5 (5 ÷ 25)	14.91 (5.05)	15.03 (5.25)	14.76 (4.81)	0.05
Clarity	.71 (.34)	5 (5 ÷ 25)	9.98 (3.68)	10.37 (3.89)*	9.52 (3.37)*	0.23
Strategies	.77 (.32)	7 (7 ÷ 35)	14.94 (5.59)	15.45 (5.72)*	14.32 (5.37)*	0.20
Total score	.88 (.17)	36 (36 ÷ 180)	82.72 (19.40)	83.23 (20.66)	82.10 (17.78)	0.06

* p<.05 between means for male and female participants

in random samples; further research is also needed to analyze the relationship between DERS and other measures (convergent validity). Nevertheless, to our knowledge, this is the first study conducted in Spain using the DERS to assess ER in an adolescent sample.

Our results are added to those already published about the DERS. With our study, we hope to provide promising data about the feasibility of using the instrument with adolescents in our country and thus contribute to a better understanding of the ER construct and its relationship with different mental disorders. From the treatment standpoint, an appropriate instrument to measure ER could help to identify groups at high risk for preventive interventions and to develop preventive strategies for Spanish adolescents.

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