Self-criticism is not a simple phenomenon: new evidence of the existence of different forms of self-criticism in a Spanish sample

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Abstract

Even though self-criticism is a well-known transdiagnostic process, there is no consensus about its different forms and functions in nonclinical populations when measured with the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS) and the Functions of Self-Criticism/Attacking Scale (FSCS). Although these scales are widely used and translated into multiple languages, there is no Spanish version of the instruments. To study the appropriateness of differentiating these forms of self-criticism, we conducted a Confirmatory Factor Analysis on the Spanish version of the FSCRS with 242 participants, comparing the one-factor, two-factor, three-factor, two-tier, and bifactor models. The 3-factor model presented the best fit in a nonclinical population. The FSCS was also explored, and the two-factor solution was confirmed. The relationship between different functions and forms of self-criticism and the capacity of self-reassuring was explored through mediation and moderation analysis to provide external validation of the scales. Mediation analysis revealed the extensive and pervasive influence of the Self-Persecution function on depression through all forms of self-criticism. Moderation analysis showed that whereas the influence of the Inadequate-Self form on depressive symptomatology was buffered by compassionate self-treatment, the effect of the Hated-Self was not moderated by self-reassure or self-compassion. This study suggests that self-criticism may have different functions with different effects on depressive symptoms. We propose that individuals cope indirectly with self-criticism through self-compassion, which, in turn, would reduce the impact on depression.

Keywords Self-criticism · Confirmatory factor analysis · Mediation · Moderation · Self-compassion

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Introduction

Self-criticism processes are present in various manifestations of psychopathology such as depression, generalized anxiety, social anxiety, self-injury, and suicidal behavior (e.g., Werner et al., 2018). Some specific forms are especially problematic, such as when self-criticism includes internal attributions to failures and setbacks (Gilbert, 2010; Kannan & Levitt, 2013) and criticism is accompanied by disgust or self-hatred (Shahar, 2015; Whelton & Greenberg, 2005).

Most scales do not discern different types of self-criticism but rather measure it in terms of intensity within a single dimension (Gilbert, 2010; Shahar, 2015). The only scales that consider different factors are the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004), the Functions of Self-Criticism/Attacking Scale (FSCS; Gilbert et al., 2004), and the Levels of Self-Criticism (LOSC; Thompson & Zuroff, 2004).

Within an evolutionary framework of social processing, Gilbert et al. (2004) developed measures of self-criticism that is activated in the context of failures and setbacks, which allows exploring not only the form but also the functions and goals of criticism (Rose & Rimes, 2018). These forms of self-criticism emerge from the analysis of the self-critical verbalizations of depressed patients (Gilbert et al., 2004). The authors also explored the diverse functions of self-criticism, examining how depressed patients explain or justify the goal or intentions underlying their self-critical thoughts. Thus, the aim of evaluating the functions of self-criticism was to understand the motivational aspects of self-criticism and explore the association between functions and specific forms of self-criticism, and the capacity for self-reassurance. Concerning these functions of self-criticism, two factors were originally proposed, Self-Correction and Self-Persecution (Gilbert et al., 2004). Self-Correction refers to preventing oneself from making mistakes and looking for achievement (Gilbert et al., 2004). However, Self-Persecution describes the desire to harm or to persecute oneself with anger, which is more linked to depression and self-harm (Gilbert et al., 2010).

The FSCRS has three factors (Gilbert et al., 2004): the "Inadequate-Self" describes criticism intended to improve and sometimes reflects the fear of not being good enough or not being loved if one does not achieve certain goals. The "Hated-Self" is a more destructive way of addressing oneself, presenting self-rejection in the face of setbacks, in which there is aggressive—even sadistic—persecution. Finally, the "Reassure-Self" consists of being supportive and compassionate, validating oneself emotionally, and remembering positive aspects about oneself.

The original work and subsequent studies support the three-factor structure of the FSCRS (Baião et al., 2015; Kupeli et al., 2013). However, various studies suggest that the Inadequate-Self and Hated-Self could be combined into one factor (Gilbert et al., 2006a; Rockliff et al., 2011). Kupeli et al. (2013) and Halamová et al. (2017) concluded that a three-factor solution is more appropriate despite finding a strong correlation between the Hated-Self and the Inadequate-Self and an appropriate fit for the two-factor model.

The study of Halamová et al. (2018) is the most methodologically comprehensive study of the FSCRS. In thirteen different populations and eight language versions, they observed that the two-tier model, with two large factors (self-criticism and self-reassurance), best fit nonclinical samples, whereas the three subscales (Inadequate-Self, Hated-Self, Reassure-Self) were more appropriate for clinical populations. Therefore, although the three-factor model appears to have more evidence, the two-tier structure and the three-factor structure should be compared in other

samples and cultures. To our knowledge, there is no adaptation to Spanish.

In addition to the evidence about the factor structure, the three forms of self-criticism have different associations with other variables. For example, the Hated-Self has a stronger relationship with and impact on psychopathological manifestations such as depression and anxiety (Baião et al., 2015; Gilbert et al., 2004, 2017) and psychotic processes (Hutton et al., 2013). Moreover, the Hated-Self is the only factor that predicts symptoms of depression, anxiety, stress, and self-harm in clinical samples (Kupeli et al., 2017; Xavier et al., 2016).

Another result supporting the distinction of three forms of self-criticism could come from the mediation analysis of the impact of self-criticism's functions on depression. It can be hypothesized that if there are different ways to criticize oneself, there are also different underlying motivations. These motivations will be reflected in the functions of this self-criticism (Gilbert et al., 2004). It is to be expected that the feelings of inadequacy generated by the Inadequate-Self form (e.g., "I can't accept failures and setbacks without feeling inadequate") are the result of an intention to improve oneself, while attacks that reflect contempt and anger, typical of self-criticism of the Hated-Self (e.g.," I have a sense of disgust with myself"), will be more related to a persecutory function. To study a possible differentiated relationship between the intention to improve oneself (Self-Correction) and the intention to harm oneself (Self-Persecution) with the concrete form that criticism takes on, Gilbert et al. (2004) conducted a mediation analysis, which also reported the impact of these functions on depression. In the first step of the standardized regression analysis, it was found that self-persecution is the function of self-criticism that bears the full weight in its relationship with depression. This finding is similar to those found in subsequent studies, where Self-Correction predicts less than 8% of the variance, while Self-Persecution predicts more than 20% of the variance (i.e., Castilho & Pinto-Gouveia, 2011; Gilbert et al., 2006b). Gilbert et al. (2004) also found that the effect of the two functions was totally mediated by the decrease in the Reassure-Self and the increase in the Hated-Self and the Inadequate-Self. However, it is unclear whether the contribution of the indirect effect through each form may vary for each function (either correction or persecution). Multiple parallel mediation analysis could be conducted to address this issue. This mediation analysis would help determine whether, in the context of self-persecution, the impact on depression is due specifically to the increase of the Hated-Self, or as previously suggested (Gilbert et al., 2004), the decrease of the Reassure-Self plays an even more important role.

Concerning the moderation of the effects of different forms of self-criticism, Petrocchi et al. (2019) showed that

the Reassure-Self mitigates the Inadequate-Self's effect on depression. It has also been found that self-compassion buffers the impact of self-criticism on depression (López et al., 2018). It is important to note that the Reassure-Self and self-compassion tap into related processes but with substantial differences (Kupeli et al., 2013). Whereas the Reassure-Self refers to the form of self-care in the specific context of failure or error ('when things go wrong for me…'), self-compassion is proposed in a more general context (Neff, 2003). However, none of these studies analyze whether compassion or self-reassure buffer the impact of the harshest forms of criticism (Hated-Self) on depression. Possibly, neither self-compassion nor self-reassure reduce this impact, which provides new reasons to differentiate the Hated-Self from the Inadequate-Self.

The objectives of this study were, firstly, to explore the factor structure and psychometric properties of the FSCRS and FSCS in a Spanish sample. Second, mediation and moderation relationships were explored to further explore the validation of the subscales as unique scales. The mediation analysis was conducted to examine how diverse forms of self-criticism mediate the effect of the Self-Correction and Self-Persecution functions on depression. Furthermore, the moderating role of the Reassure-Self and self-compassion in the impact of the Inadequate-Self and the Hated-Self on depression was also explored.

Method

Participants

The participants were 242 individuals aged between 18 and 68 (Mean = 31.53, SD = 11.17); 78 participants were men (32.2%), and 164 were women (67.8%). A total of 140 (57.9%) were single, 90 people were living with a partner (37.2%), and 8 were separated (3.3%). Following MacCallum et al. (1996), the present sample has a power higher than 0.80 for covariance structure modeling, with n = 242 and

more than 185 degrees of freedom. Also, this sample size has a power greater than 0.80 for mediation with medium-size path coefficients (Fritz & Mackinnon, 2007).

Instruments

Forms of self-criticizing/attacking and self-reassuring scale (Gilbert et al., 2004)

This scale has 22 items and three factors that measure two forms of self-criticism, the Hated-Self and the Inadequate-Self, and the ability to reassure oneself (Reassure-Self), rated on a 5-point Likert scale ranging from 0 (not at all like me) to 4 (extremely like me). Hated-Self expresses feelings of hatred or the desire to harm oneself in response to failures (e.g., "I have become so angry with myself that I want to hurt or injure myself). Inadequate-Self reflects a person's feelings of inadequacy in the face of mistakes (e.g., "There is a part of me that feels I am not good enough"), whereas the Self-Reassure refers to the capacity to care for oneself, tolerate one's mistakes, deceptions, and feelings of vulnerability, offering self-compassion, remembering one's past achievements and positive aspects (e.g., "I can still feel lovable and acceptable") The internal reliability coefficients are adequate (.71– .88; see Table 1).

Functions of self-criticism/attacking scale (Gilbert et al., 2004)

This scale presents two sub-scales, Self-Correction (SC) and Self-Persecution (SP) with 21 items rated on a 5-point Likert scale ranging from 0 (not at all like me) to 4 (extremely like me). The SC subscale presents critical attitudes intended to improve oneself (e.g., "To stop me becoming arrogant"). Contrariwise, the SP subscale describes angry feelings aimed at oneself to harm or attack oneself as vengeance for failures (e.g., "To destroy a part of me"). The internal consistency coefficients are good (0.82 and 0.88; see Table 1).

Levels of self-criticism scale (Thompson & Zuroff, 2004)

This scale measures two factors, Comparative Self-Criticism (CSC) through 12 items, and Internalized Self-Criticism (ISC), with 10 items. It is rated on a 7-point Likert scale ranging from 1(not at all) to 7 (very well). The CSC refers to a form of criticizing oneself in comparison to others (e.g., "I often worry that other people will find out what I'm really like and be upset with me"). In contrast, the ISC refers to a negative self-view but compared to one's internal criteria (e.g., "I am very frustrated with myself when I don't meet the standards I have for myself".). The values of alpha obtained were α = 0.81 for CSC, and α = 0.87 for ISC.

Table 1 Reliability of the FSCRS and FSCS

Scale	Factors	Reliability indexes			
		α	ω	$ω_h$	ECV
FSCRS (forms)	General Factor	0.93	0.96	0.84	0.70
	Global Self-criticism	0.90	0.91	--	--
	RS	0.88	0.91	--	--
	IS	0.88	0.91	--	--
	HS	0.71	0.89	--	--
FSCS (functions)	General factor	0.88	0.94	0.63	0.52
	SC	0.86	0.90	--	--
	SP	0.82	0.93	--	--

α, Cronbach's alpha; ω, Omega; ωh, Hierarchical Omega; *ECV*, Common Explained Variance; *RS*, Reassure-Self; *IS*, Inadequate-Self; *HS*, Hated-Self; *SC*, Self-Correction; *SP*, Self-Persecution

Beck Depression Inventory-II (BDI-II; Beck et al., 1996)

This instrument presents 21 items rated from 0 to 3 ranging from 0 (no presence of the symptom) to 3 (highest presence) to evaluate depressive symptoms (e.g., Sadness: 0 = "I do not feel sad"; 1 = "I feel sad"; 2 = "I am sad all the time and I can't snap out of it"; 3 = "I am so sad and unhappy that I can't stand it"). The value of alpha obtained was $\alpha = 0.90$.

Self-compassion scale (Neff, 2003)

This scale presents 26 items rated on a 5-point scale ranging from 1 (*almost never*) to 5 (*almost always*), and it measures three dimensions: a compassionate attitude toward one-self, a sense of common humanity, and mindfulness. In this study, we only used the self-compassion dimension, which showed adequate reliability ($\alpha = 0.89$). Self-compassion involves showing kindness and understanding to oneself during times of pain or failure instead of being overly critical (e.g., "I try to be loving towards myself when I'm feeling emotional pain" or "I'm tolerant of my own flaws and inadequacies").

Procedure

Following the translation and back-translation process, the FSCRS and FSCS were translated into Spanish, and an English philologist translated them back. A close collaborator of the original developer of the scales examined the differences, and the process was repeated until agreement was reached.

Participants were recruited through a snowball procedure, starting through social media and in person at the University. Participants were informed that their data would be anonymous and that participation was voluntary. After consenting, they completed the questionnaires on paper ($n = 109$, 45%) or online ($n = 135$, 55%). The study was approved by the [shielded for peer review] ethics committee (22052017).

Data analysis

Due to the ordinal nature of the FSCRS items, confirmatory factor analyses were conducted with Mplus (Muthén & Muthén, 1998–2011) with weighted least square mean and variance adjusted estimator (WLSMV), adequate for non-normal distributions. Five models were tested for the FSCRS: (1) a one-factor model (self-criticism); (2) a two-factor model of global Self-Criticism and the Reassuring-Self (where global Self-Criticism encompasses the items of the Inadequate-Self (IS) and the Hated-Self (HS); (3) a three-factor correlated model (i.e., IS, HS, and RS); and,

as Halamová et al. (2018) suggested, 4)a bifactor model; and 5) a two-tier model. The bifactor model presented three independent factors, IS, HS, and RS, and an orthogonal general factor on which all items loaded. The two-tier model also presented the three independent facets, IS, HS, and RS, but with two general factors (general Self-criticism and Self-Reassurance).

Two models were compared for the FSCS: (1) a one-factor model (self-criticism functions), and (2) a model of two intercorrelated factors (Self-Correction and Self-Persecution).

Values of χ^2/df lower than 3, comparative fit index (CFI) and Tucker Lewis index (TLI) values equal to or greater than 0.90, or root mean square error of approximation (RMSEA) values below 0.08 were considered good fit indicators (Hu & Bentler, 1999), as were values of WRMR below 1 (DiStefano et al., 2018). In addition, nested models were compared based on chi-square differences by the DIFFTEST, a more conservative corrected chi-square test recommended for models computed with WLSMV estimators (Asparouhov & Muthén, 2010). The nested models were compared by incremental structural complexity. For the FSCRS, the two-factor model was compared to the one-factor model, the three-factor model to the two-factor model, the bifactor model to the three-factor model, and the three-factor model to the two-tier model model. For the FSCS, the two-factor model was compared to the one-factor model.

Mokken scale analysis with R (Van der Ark, 2012) was performed, which allows analyzing the scalability and the violation of latent monotonicity of the items to infer and interpret the existence of a common construct. The H, Hj, and Hij coefficients inform of the latent scalability, the scalability of the items, and the scalability of the item pairs, respectively. H and Hj < 0.30 or Hij < 0 are considered indicators of insufficient scalability (Kuijpers et al., 2013).

Lastly, four reliability indices were analyzed: Cronbach's alpha, Omega, Hierarchical Omega, and explained common variance (ECV). The last three were calculated using Watkins' (2013) software. The highest Hierarchical Omega and ECV reflect greater factorial one-dimensionality in bifactor models (Tang et al., 2014). Hierarchical Omega and ECV > 0.80 were considered indicators of one-dimensionality.

For multiple mediation and moderation analyses, we used the Process macro (Hayes, 2017) with SPSS v. 26, using 10,000 samples for confidence intervals in bootstrapping procedures. A mediation analysis is conducted for each independent variable (SC or SP), including the other as a controlled variable. The random number generator is seeded with a common (and arbitrary) seed to estimate a single model with multiple independent variables (Hayes, 2013). A multiple parallel mediation analysis was performed,

including all the antecedents simultaneously. The Johnson-Neymar technique (Hayes, 2017) was used to probe moderation effects.

All study materials and syntax will be made available https://osf.io/x5fvh/?view_only=7e5a05ffa54142ca846c2a 4b4148ffb1. This study was not preregistered.

Results

Factor structure of FSCRS and FSCS

As missing data were lower than 1% (0.08%) and were random (MCAR test, $\chi^2[293]=294.65$, $p=.46$), pairwise deletion was applied. Concerning the FSCRS, the one-factor model was the only one with poor fit indicators (see Table 2). Moreover, the two-tier model could not be computed (general Self-criticism and Self-Reassurance showed covariance > 1, which indicates the inadequacy of treating them as independent factors). The two- and three-factor models and the bifactor model showed good and similar fit values. The comparison tests of these three models showed that the three-factor model fit the data significantly better than the two-factor or the bifactor model.

The scale did not meet the criteria of monotonicity and scalability. There were 16 violations of latent monotonicity; no item (Hj = [-0.09, 0.19]) nor the overall scale (H = 0.08) met the 0.30 criterion. Moreover, the results of the scalability of the 220 pairs of items showed that only four pairs met the criteria. In short, these analyses reinforced the non-existence of a general factor of forms of self-criticism.

Finally, reliability indicators were examined. As shown in Table 1, the hierarchical omega was greater than 0.80, but the ECV was 0.70, not reaching the cut-off point of 0.80 to consider the one-dimensionality of the scale.

Concerning the FSCS, the fit indicators showed that only the two-factor model was appropriate (see Table 2) and fit the data significantly better than the one-factor model.

The reliability results shown in Table 1 indicated good internal consistency values for Self-Correction and Self-Persecution, whereas the Hierarchical Omega and ECV of the global factor were lower than 0.80, indicating lack of one-dimensionality. All factorial weights were significant in both the FSCRS and the FSCS (Figs. 1 and 2).

Mediation and moderation analysis

The correlations were statistically significant and high in most cases (Table 3). The mediation model significantly explained the variance of depression ($R^2=0.58$, see Table 4). The effect of the Self-Correction function on depression was only mediated by the Inadequate-Self form (ab=0.07, $SE=0.22$, 95% CI [0.03, 0.12]), whereas the Self-Correction function had no effect on depression either through the Reassuring-Self (ab = -0.004, $SE=0.02$, 95% CI [-0.04, 0.03]) or the Hated-Self forms (ab=0.02, $SE=0.01$, 95% CI [-0.001, 0.055]).

Moreover, the effect of the Self-Persecution function on depression was mediated by the three forms of self-criticism, with statistically significant indirect effects through the Reassure-Self (ab=0.32, $SE=0.07$, 95% CI [0.19, 0.47]), the Inadequate-Self (ab=0.21, $SE=0.07$, 95% CI [0.09, 0.36]), and the Hated-Self (ab=0.25, $SE=0.10$, 95% CI [0.07, 0.45]).

Table 5 shows moderation analyses of the effect of the forms of self-criticism on depression. Both the Reassure-Self ($\Delta F(1, 232)=4.02$, $p=.046$, $\Delta R^2=0.01$) and Self-Compassion ($\Delta F(1, 234)=16.84$, $p<.001$, $\Delta R^2=0.03$) moderated the effect of the Inadequate-Self on depression.

Considering the Reassure-Self, the Johnson-Neyman technique shows that, for all Reassure-Self values, the effect of the Inadequate-Self on the BDI was statistically significant, although its effect on depression was lower at higher Reassure-Self scores. Considering self-compassion, for values higher than 38.94 (the 79th percentile), the effect of Inadequate-Self on the BDI was no longer statistically

Table 2 Comparison and fit indicators of the models of the FSCRS and FSCS

Scale	Model	Model fit[a]*							Model comparison[b]		
		χ^2	df	χ^2/df	CFI	TLI	RMSEA	WRMR	χ^2	df	p
FSCRS (forms)	1-factor	876.17	209	4.19	0.88	0.87	0.115	1.58	--	--	--
	2-factor	440.97	208	2.12	0.96	0.96	0.068	1.02	95.75	1	<0.001
	3-factor	303.28	206	1.47	0.97	0.97	0.060	0.92	30.37	2	<0.001
	Bifactor	331.31	187	1.77	0.98	0.97	0.056	0.79	-58.57	19	<0.001
	Two-tier	NC	--	--	--	--	--	--	--	--	--
FSCS (functions)	1-factor	884.93	185	4.78	0.82	0.79	0.125	1.99	--	--	--
	2-factor	462.74	184	2.51	0.93	0.92	0.079	0.97	100.56	1	<0.001

χ^2, Chi-square; *df*, degree freedom; *CFI*, Comparative Fit Index; *TLI*, Tucker-Lewis Index; *RMSEA*, Root Mean Square Error of Approximation; *WRMR*, Weighted Root Mean Square Residual

[a]Good model fit criteria: $\chi^2/df<3$, CFI & TLI ≤ 0.90 TLI or RMSEA < 0.08 (Hu &Bentler, 1999), WRMR < 1 (DiStefano et al., 2018)

[b]DIFFTEST = model comparison based on corrected chi-square tests in mean and variance
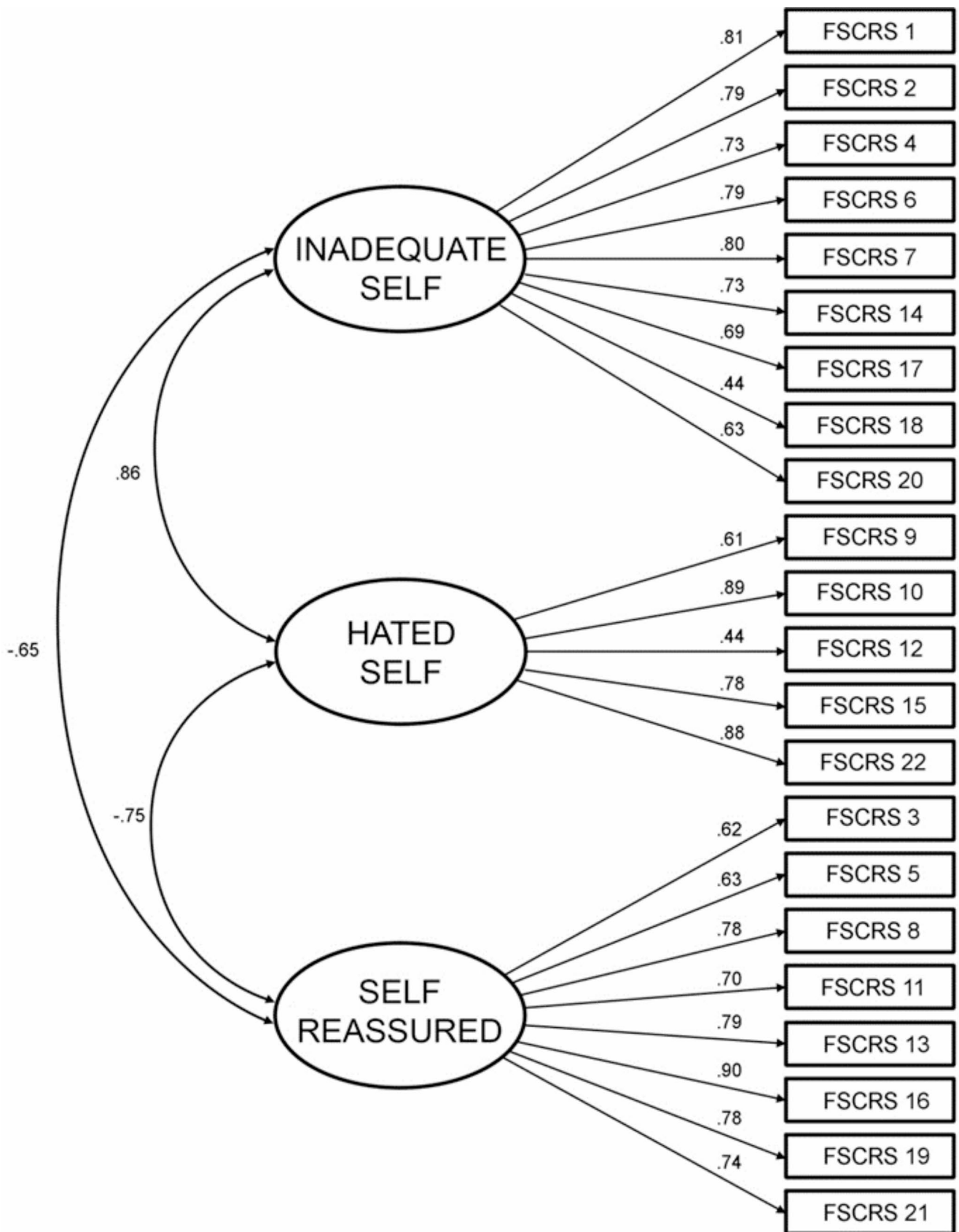
Fig. 1 Standardized results of the final model of the forms of self-criticism scale. FSCRS 1–FSCRS 22 denote the items of the scale. All factorial weights were significant at $p < .001$
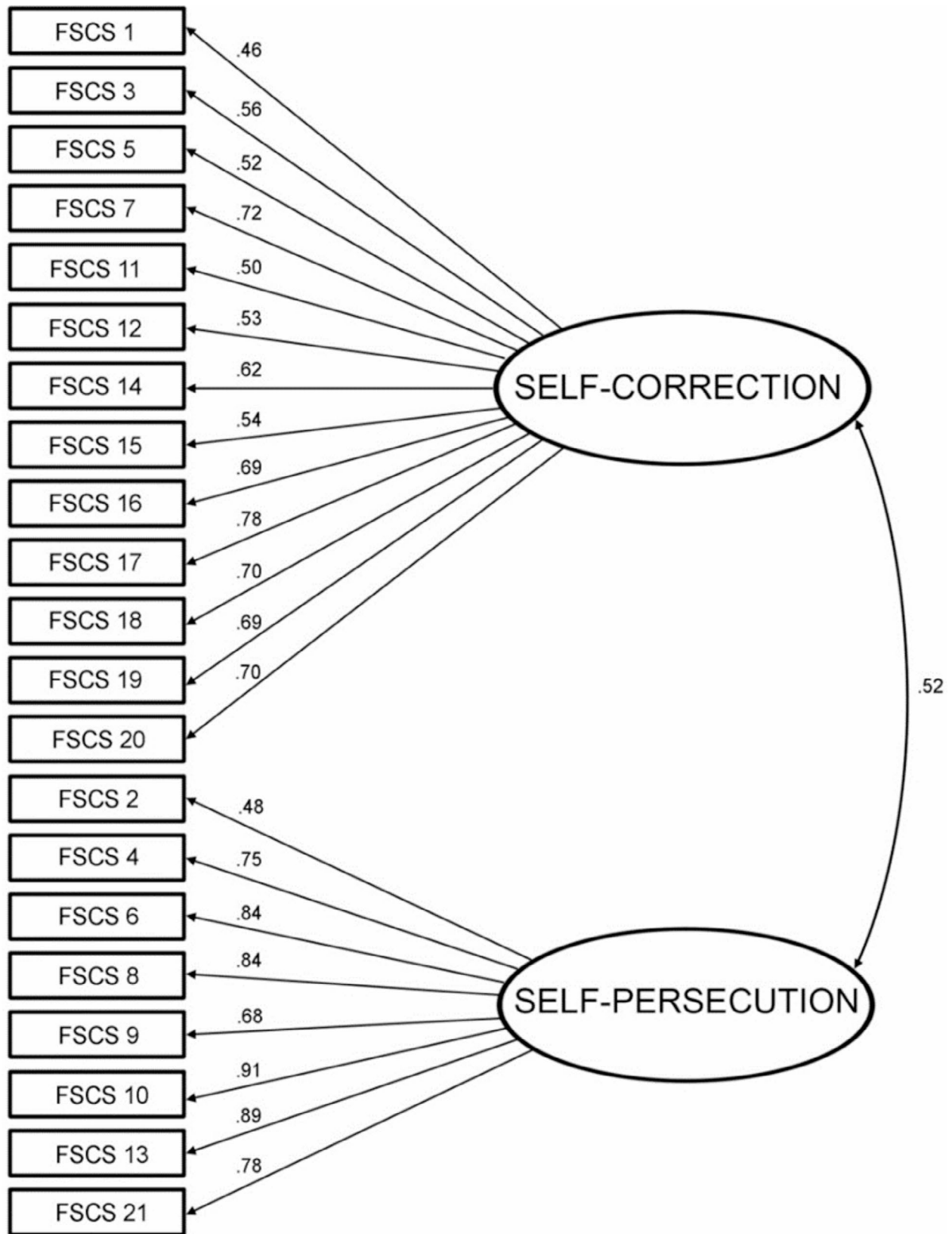
Fig. 2 Standardized results of the final model of the functions of self-criticism. FSCS 1−FSCS 21 denote the items of the scale. All factorial weights were significant at $p < .001$

Table 3 Pearson correlations between outcome measures (BDI, FSCRS, FSCS, LOSC and SCS)

	SCom	BDI	IS	HS	RS	SC	SP	CSC	ISC
BDI	−0.629[**]								
IS	−0.690[**]	0.673[**]							
HS	−0.614[**]	0.638[**]	0.677[**]						
RS	0.709[**]	−0.642[**]	−0.596[**]	−0.566[**]					
SC	−0.305[**]	0.405[**]	0.497[**]	0.362[**]	−0.196[**]				
SP	−0.523[**]	0.538[**]	0.582[**]	0.680[**]	−0.491[**]	0.418[**]			
CSC	−0.626[**]	0.624[**]	0.613[**]	0.540[**]	−0.645[**]	0.393[**]	0.453[**]		
ISC	−0.746[**]	0.568[**]	0.733[**]	0.583[**]	−0.577[**]	0.448[**]	0.499[**]	0.630[**]	
Mean	31.33	10.14	12.91	2.54	19.87	14.76	3.27	36.65	38.69
SD	8.24	8.22	7.26	2.89	5.92	8.79	4.42	10.88	11.93

SCom, Self-Compassion; *IS*, Inadequate-Self; *HS*, Hated-Self; *RS*, Reassured-Self; *SC*, Self-Correction; *SP*, Self-Persecution; *CSC*, Comparative Self-Criticism; *ISC*, Internalized Self-Criticism

[**]: $p < .01$

significant (Fig. 3). The effect of Hated-Self on the BDI was not moderated either by the Reassure-Self ($\Delta F(1, 233) = 0.41$, $p = .52$, $\Delta R^2 = 0.001$) or by Self-Compassion ($\Delta F(1, 234) = 3.33$, $p = .07$, $\Delta R^2 = 0.01$).

Discussion

The results of the factor structure of the FSCRS indicate that the three-factor model was the best, coinciding with previous studies (Baião et al., 2015; Halamanová et al., 2017; Kupeli et al., 2013). Although the three-factor model obtained the best fit, the bifactor model was also acceptable. Based on all this, it can be said that the three factors—Inadequate-Self, Hated-Self, and Reassure-Self— are the most specific and appropriate aspects to conceptualize the FSCRS in Spanish population. The good fit of the bifactor model indicates that self-criticism could be used complementarily to the three dimensions.

Moreover, the results obtained allow us to reject alternative structures. The poor results of the one-factor model permit rejecting a single factor. In fact, the results of the criteria of monotonicity and scalability analysis, as well as the ECV, indicated the absence of a global indicator of forms of self-criticism, but pointed towards a multidimensional construct. Additionally, the comparative results of the two-factor model show that the fusion of the Inadequate-Self and the Hated-Self dimensions into the global Self-Criticism factor is not appropriate. In addition to the two models, we tested an alternative model, the two-tier model. Although it could not be computed, it aligns with the observations of Halamová et al. (2018) in samples from Canada, China, Japan, the Netherlands, and Taiwan.

The results of the factor structure of the FSCS replicated the original structure of two correlated factors—Self-Correction and Self-Persecution (Gilbert et al., 2004), also indicating the absence of a single factor due to the ECV, hierarchical omega, monotonicity, and scability results. For both scales, FSCRS and FSCS, the factorial weights and reliability indices were good. This, together with the good fit of the proposed models, indicates the appropriate psychometric properties and the robustness of both instruments.

As far as concurrent validity is concerned, we find values similar to the original studies (Gilbert et al., 2004) in the association of the FSCRS with the LOSC scale. Also, we find adequate indications of convergent validity using the SCS, as in previous studies (Castilho et al., 2015; Halamová et al., 2017).

Regarding the mediation model, we find that, while the Self-Correction function affects depressive symptoms only through the Inadequate-Self, the Self-Persecution function has an impact on depression through all the different forms of self-criticism, especially decreasing the Reassured-Self. This indirect effect through the reduction of the Reassured-Self aligns with the approach of Gilbert et al. (2004), who called for distinguishing self-persecution when it expresses a mere lashing out at the self, in which there is no real impairment of self-support, from real self-persecution, which involves reducing self-support, eventually exacerbating the depressive process. When the resilience of the Reassure-self is reduced, the impact of self-criticism is much greater, as also shown by experimental procedures (Whelton & Greenberg, 2005). In contrast to Gilbert et al.'s (2004) study, we show data on the indirect effect on depression, differentiating each function (SP and SC).

However, the results of the moderation models analyzed showed that neither the Reassure-Self nor self-compassion buffers the adverse effect of the Hated-Self on depression. Nevertheless, the Reassure-Self and self-compassion moderate the relationship between the Inadequate-Self and depressive symptoms to a greater extent than in previous studies with representative samples (Körner et al., 2015; López et al., 2018), and similar those using convenience samples of students and adults (Ferrari et al., 2018).

Table 4 Model summary information for the parallel multiple mediator model

Antecedent		Consequent										
		RS			IS			HS			Y (BDI)		
		B	SE	p	B	SE	p	B	SE	p	B	SE	p
FSCS	SC	0.01	0.04	0.847	0.25	0.05	<0.001	0.03	0.02	0.090	0.11	0.05	0.017
	SP	−0.69	0.09	<0.001	0.76	0.09	<0.001	0.43	0.04	<0.001	0.08	0.127	0.491
FSCRS	RS	-	-	-	-	-	-	-	-	-	−0.46	0.08	<0.001
	IS	-	-	-	-	-	-	-	-	-	0.28	0.08	<0.001
	HS	-	-	-	-	-	-	-	-	-	0.59	0.19	0.003
Constant		22.10	0.66	<0.001	6.72	0.71	<0.001	0.73	0.27	0.007	12.24	2.14	<0.001
		$R^2=0.252$			$R^2=0.424$			$R^2=0.475$			$R^2=0.584$		
		$F_{(2,231)}=38.90, p<.001$			$F_{(2,231)}=84.85, p<.001$			$F_{(2,231)}=104.36, p<.001$			$F_{(5,228)}=63.91, p<.001$		

SC, Self-Correction; SP, Self-Persecution; RS, Reassure-Self; IS, Inadequate-Self; HS, Hated-Self; BDI, Beck Depression Inventory; B, Coefficient; SE, Standard Error

Because the action of the Inadequate-Self is less pathogenic, the person's self-reassuring and self-compassionate abilities can probably reduce the negative consequences provoked by raising one's standards. However, in people with high levels of destructive self-criticism, our results suggest that attempting to counteract the repercussions of such criticism only by promoting a reassuring or self-compassionate attitude might be insufficient. Congruently, Choi et al. (2016) showed that the cases of good results in the resolution of self-criticism presented emotions in the session that did not involve feeling compassionate self-comfort but other healing emotional processes, such as pain/grief or assertive anger.

It is not surprising that the severe form of self-criticism (i.e., the Hated-Self) is more closely associated with more severe forms of pathology or histories of abuse, maltreatment, or trauma (Baião et al., 2015; Gilbert et al., 2004), which can even generate feelings of fear when receiving compassionate treatment (Matos et al., 2017) and block the buffering effect of compassion. Therefore, other adaptive emotions, such as assertive anger or the grieving of mourning, can be key emotional processes that allow transforming the harmful effect of this criticism (Pascual-Leone, 2017). For example, in disorders with a high presence of self-criticism, such as social anxiety, it is especially necessary to access adaptive sadness/grief and assertive anger (Haberman et al., 2019).

Moreover, the relationship between compassion and the harsher forms of self-criticism seems more complex than initially assumed. For example, studies that explore the effect of training on self-compassion detect an increase in self-criticism when this self-to-self relationship is introduced in a few sessions (Beaumont et al., 2016). In any case, facilitating emotional processes that restore the feeling of self-worth seems crucial in mental health, as different clinical theories suggest (for a review, Birni & Erylmaz, 2024). Thus, psychotherapeutic interventions might need to directly address destructive self-criticism. This differential response of the two types of self-criticism to self-compassion opens the possibility of carrying out evaluations that allow designing specific interventions.

The main limitations of this study are its cross-sectional design and the use of a non-representative and nonclinical sample. This limitation could explain the greater correlations between the scales' dimensions with other constructs than with the same scale's dimensions. This can be due to the multidimensional nature of the constructs as well as due to common method variance. Therefore, longitudinal and experimental research could examine these relationships and the discriminant validity of the scales. Gender and age differences may be important for self-criticism and self-compassion and were not addressed. Also, a non-validated

Table 5 Results from four regression analyses examining the moderation of the effect of the FSCRS (IS and HS) on BDI through RS and self-compassion

	Reassured Self as Moderator					Self-Compassion as Moderator			
	Coef.	SE	t	p		Coef.	SE	t	p
Intersection	9.46	3.13	3.03	0.003	Intersection	4.42	3.40	1.30	0.195
IS	0.80	0.16	5.07	<0.001	IS	1.21	0.18	6.62	<0.001
RS	−0.30	0.14	-2.16	0.032	SComp	−0.02	0.09	−0.18	0.861
IS x RS	−0.02*	0.01	-2.00	0.046	IS x SComp	−0.03***	0.01	-4.10	<0.001
$R^2 = 0.55$, $F(3,232) = 94.70$, $p < .001$; $\Delta R^2 = 0.01$					$R^2 = 0.54$, $F(3,234) = 90.72$, $p < .001$; $\Delta R^2 = 0.03$				
Intersección	17.90	2.14	8.37	<0.001	Intersección	17.52	2.34	7.49	<0.001
HS	1.34	0.35	3.82	<0.001	HS	1.83	0.41	4.42	<0.001
RS	−0.53	0.10	-5.52	<0.001	SComp	−0.32	0.07	-4.80	<0.001
HS x RS	−0.01	0.02	−0.64	0.521	HS x SComp	0.03	0.02	-1.82	0.070
$R^2 = 0.52$, $F(3,233) = 84.78$, $p < .001$; $\Delta R^2 < 0.001$					$R^2 = 0.507$, $F(3,234) = 80.352$, $p < .001$; $\Delta R^2 = 0.0070$				

IS, Inadequate-Self; *RS*, Reassured-Self; *HS*, Hated-Self; *SComp*, Self-Compassion; *Coef.*, Coefficient; *SE*, Standard Error

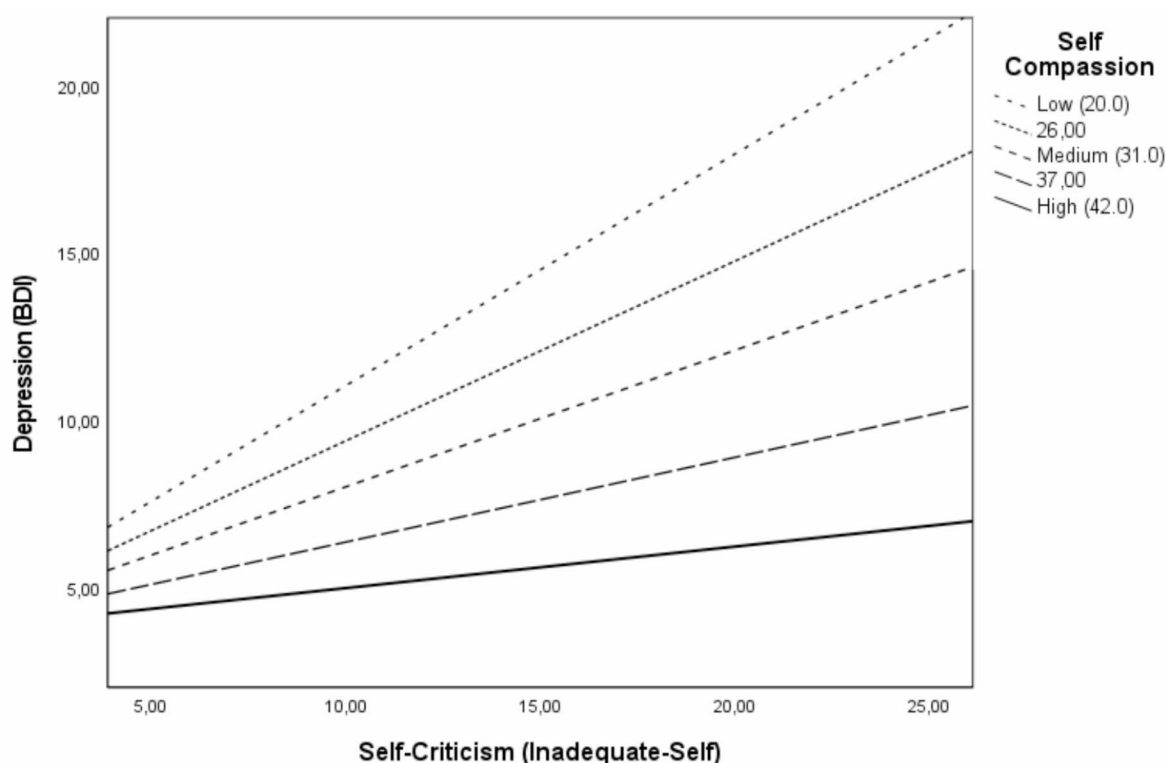*$p < .05$; ***$p < .001$

Fig. 3 Regression line of BDI as a function of inadequate-self for different values of self-compassion

Spanish version of the LOSC scale was used to examine convergent validity. Finally, there could be differences related to the online and in-person formats, although we expect similar results based on previous research (Hiskey & Troop, 2002).

As future research directions, we note the need to explore how this scale predicts scores in other psychopathological manifestations (e.g., anxiety, symptoms of post-traumatic stress disorders, eating disorders…). It is important to note that the original scale comes from the verbalizations

of depressive patients and despite having been applied to other disorders, the measurement invariance across different clinical manifestations has not been explored. In addition, it would be interesting to examine the forms of self-criticism that occur more broadly and not only the self-criticism that is activated in the face of setbacks or failures, as this scale proposes.

In summary, this study presents evidence of the appropriate psychometric properties and validity of a scale that measures forms of self-criticism (FSCRS) and two different

functions (FSCS). The factor structure differentiates two forms of self-criticism (the Hated-Self and the Inadequate-Self) and the ability to be self-reassuring. Although formulated as contrary processes, there is no evidence showing that either self-criticism or self-reassurance lay on the same continuum, or that the Inadequate-Self or the Hated-Self forms are not differentiable. The mediation analysis has replicated the model proposed by the authors of the original scale, in which the effects of self-criticism functions on depression are mediated by the different forms.

Other important findings are the moderating effect of the Reassure-Self and self-compassion on the Inadequate-Self and their impact on depression, and the pervasive effect of the Hated-Self on depression. This indicates the importance of addressing self-criticism and its consequences through different mechanisms, which not only include the ability to be self-compassionate, especially in treating the most pathogenic form of self-criticism.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Competing interests The authors report there are no competing interests to declare.

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