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ORIGINAL ARTICLE

# Validation of the Spanish version of the Borderline Personality Disorder Checklist (BPD Checklist) in a sample of BPD patients: Study of psychometric properties



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## KEYWORDS

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Borderline Personality Disorder Checklist (BPD Checklist);  
Reliability;  
Validity

## Abstract

**Background and objectives:** Borderline Personality Disorder (BPD) is one of the most complex personality disorders (PD). The Borderline Personality Disorder Checklist (BPD Checklist) is an instrument specifically designed to assess the burden of BPD symptoms according to DSM-IV/5 criteria in the past month.

**Methods:** Our goal was to adapt and validate the BPD Checklist in Spanish and to study its psychometric properties, i.e. reliability and validity. We administered it in a sample of BPD patients ( $n = 342$ ) and in a sample of patients with other PD diagnoses ( $n = 190$ ).

**Results:** The results obtained indicated that the psychometric properties of the Spanish version of the BPD Checklist are similar to those of the original version of the instrument. The internal consistency indices were generally good to excellent. The total score and the subscales of the BPD Checklist discriminated between diagnostic samples. As expected, the subscales were associated with the scores on the SCID-II and self-rating measures.

**Conclusions:** Our results are consistent with the original version of BPD Checklist. In general, it is an adequate instrument for clinical screening and to assess the subjective burden of BPD experienced by the patient in the past month.

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## Introduction

Borderline Personality Disorder (BPD) is a very serious disorder which is basically characterized by instability in emotions, interpersonal relationships, and self-image and cognition, and by marked impulsivity. BPD manifests mainly through abandonment fears, intense interpersonal problems, identity problems, intense anger, affective lability, experienced emptiness, self-inflicted injuries, suicide attempts, drug abuse, and stress-related paranoid ideation and dissociative symptoms.<sup>1-3</sup> It has a high co-morbidity with Substance Use Disorder (SUD), affective and anxiety disorders, and Attention Deficit and/or Hyperactivity Disorder (ADHD),<sup>3,4</sup> which complicates its diagnosis and treatment, and negatively influences the evolution of the disorder. BPD has a very high prevalence in clinical settings (15–25%).<sup>5,6</sup> It has a strong impact on the individuals who suffer from it, with negative outcomes in different areas of functioning and with serious repercussions in educational, occupational, social, and legal settings, as well as a high economic cost for the health care system.<sup>6-8</sup> Since its placement in the Personality Disorders (PD) on Axis II of the Diagnostic and Statistical Manual of Mental Disorders-III,<sup>9</sup> interest in the study of BPD has increased. At the same time, there has been an increase in the development of clinical and research instruments for its diagnosis, especially with regard to the course of the disorder over time. Semistructured interviews, such as the SCID-II<sup>10</sup> or the DIB-R,<sup>11</sup> or a combination of interviews and self-reports have been recommended for the categorical diagnosis of BPD.<sup>12,13</sup> However, these interviews involve high costs in time and money. Unfortunately, in Spain there are currently few short, reliable, and valid instruments to assess BPD symptoms and their severity in a short period of time (e.g. Spanish version of the Borderline Symptom List, short form; BSL-23<sup>14</sup>), a need that increases considerably in our clinical environment.

The Borderline Personality Disorder Checklist (BPD Checklist)<sup>15-18</sup> is an instrument specifically designed to evaluate the subjective burden of BPD symptoms in the past month, and also to rate symptomatic changes after intervention. The original Dutch version of the BPD Checklist has been applied to clinical and non-clinical samples. The results obtained to date indicate that it has adequate psychometric properties. Specifically, it has generally excellent internal consistency in clinical samples of BPD patients (Cronbach's alphas between .92 and .93) and in samples of psychiatric patients (.97), with alpha coefficients ranging between .69 (subscale of Suicidal/Parasuicidal behaviors) and .93 (subscale of Affective instability).<sup>18,19</sup> Previous studies indicate good discriminant and construct validity, and adequate sensitivity and specificity to identify BPD.<sup>18</sup> The BPD Checklist has been used as a measure of pre (baseline)-post change of BPD symptomatology in patients who have received psychotherapeutic intervention.<sup>18,20-23</sup> It has also shown a sensitive measure of therapeutic change of BPD symptoms in clinical samples.<sup>18,24</sup>

The present study focused on the psychometric properties of the Spanish version of the BPD Checklist. More specifically, it had the following goals: (1) to study its reliability, (2) to study the instrument's level of diagnostic concordance, (3) discriminant and (4) convergent validity

with the SCID-II and with other instruments in a sample of psychiatric outpatients with a BPD diagnosis.

## Method

### Participants

This is an observational, cross-sectional study of a total of 532 outpatients with suspicion of BPD who were consecutively referred from the Psychiatry Department of the General Hospital in Barcelona (Spain). Inclusion criteria were: age 18–60 years; at least average intelligence; no current diagnosis of schizophrenia, bipolar I disorder, or active substance dependence disorder; not suffering from any organic condition that could better explain the symptoms; and no learning disabilities.

These patients were distributed in two samples as a function of diagnosis. The BPD sample consisted of 342 outpatients, of whom 84.5% were women ( $n = 289$ ), with a mean age of 28.94 years ( $SD = 8.48$ ). Moreover, 69.2% ( $n = 236$ ) were single, 47.1% ( $n = 155$ ) had an educational level equivalent to primary studies or less, only 14.3% had university studies, and 53.2% ( $n = 173$ ) were unemployed or on disability leave.

The non-BPD sample consisted of 190 psychiatric outpatients with other PDs, mainly Avoidant PD and Depressive PD (84.6 and 86.6%, respectively). Of them, 72% ( $n = 136$ ) were women. These patients had a mean age of 30.75 years ( $SD = 9.73$ ), 69.7% ( $n = 129$ ) were single, 39.2% ( $n = 70$ ) had primary studies or less, and 48.9% ( $n = 87$ ) were unemployed.

Regarding sociodemographic characteristics in the total sample, significant differences were observed between the BPD and non-BPD sample in gender ( $\chi^2 = 11.99$ ,  $p = .001$ ) and age ( $t = 2.24$ ,  $p = .026$ ). No significant group differences were found in other sociodemographic variables, such as civil status, level of education, or employment status (see [Table 1](#))

In relation to Axis I comorbid disorders, on average, the BPD sample had significantly more Axis I diagnoses than the non-BPD sample. Mood disorder (35.8% vs. 24.6% non-BPD;  $\chi^2 = 9.93$ ,  $p = .007$ ), anxiety disorder (38.4% vs. 24.6% non-BPD;  $\chi^2 = 13.98$ ,  $p = .001$ ), posttraumatic stress disorder (PTSD) (11.3% vs. 3.7% non-BPD;  $\chi^2 = 12.56$ ,  $p = .002$ ) and bulimia nervosa (10.4% vs. 1.6% non-BPD;  $\chi^2 = 18.72$ ,  $p = .002$ ) were significantly more prevalent in the BPD sample. In relation to substance use disorder (SUD), the BPD sample showed more presence of abuse of anxiolytics (7.1% vs. 2.0% non-BPD;  $\chi^2 = 9.61$ ,  $p = .022$ ) and a higher tendency of alcohol abuse than the non-BPD sample (22.6% vs. 17.6% non-BPD;  $\chi^2 = 3.45$ ,  $p = .178$ ). The mean number of Axis I disorders in the BPD sample was significantly higher than in the non-BPD sample (mean 2.42 vs. 1.79,  $p = .05$ ). There was a significant difference in the number of diagnostic BPD criteria of the SCID-II between the samples: the BPD sample had 6.98 ( $SD = 1.38$ ) versus 2.68 in the non-BPD sample ( $SD = 1.17$ ) ( $p = .000$ ) (see [Table 1](#)).

The study was approved by the Ethics Committee of the hospital. All patients provided written informed consent for participation before their inclusion in the study.

**Table 1** Sociodemographic characteristics, number of Axis I diagnoses, and number of BPD criteria of DSM-IV in the two groups.

	BPD ( <i>n</i> = 342)		Non BPD ( <i>n</i> = 190)		$\chi^2$	df	<i>p</i>	
	<i>n</i>	(%)	<i>n</i>	(%)				
Female	289	(84.5)	136	(72.0)	11.99	1	.001	
Civil status					.60	2	.740	
Single	236	(69.2)	129	(69.7)				
Married/partner	61	(17.9)	29	(15.7)				
Occupation					.87	1	.350	
Active	152	(46.8)	91	(51.1)				
Unemployed	173	(53.2)	87	(48.9)				
Level of education					5.98	3	.113	
No studies/primary	155	(47.1)	70	(39.2)				
Secondary	127	(38.6)	71	(39.2)				
University degree	47	(14.3)	39	(21.5)				
		Mean	(SD)	Mean	(SD)	<i>t</i>	df	<i>p</i>
Age		28.94	(8.48)	30.75	(9.73)	2.24	529	.026
Number Axis I disorders		2.28	(1.42)	1.70	(1.22)	-4.72	529	<.001
Number of BDP criteria of DSM-IV		6.98	(1.38)	2.68	(1.17)	-38.01	529	<.001

## Measures

All the patients were evaluated with a clinical interview and underwent psychopathological evaluation by a psychiatrist and a clinical psychologist with experience both in BPD diagnosis and in the administration of the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II). The Spanish version of the SCID-II<sup>10</sup> was used to assess the diagnosis of BPD and other PDs according to DSM-IV/DSM-5 criteria. The final diagnoses were endorsed according to SCID results. However, in case of discrepancies with the clinical evaluation, the patient was reevaluated in order to confirm the results.

To determine current Axis I comorbid disorders, the Spanish version of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)<sup>25</sup> was used.

The Borderline Personality Disorder Checklist (BPD Checklist)<sup>15,18</sup> contains 47 items on a 5-point Likert format, ranging from 0 (Not at all) to 5 (Extremely). The items are grouped into 9 subscales corresponding to the criteria of the DSM-IV/DSM-5 (APA)<sup>1,2</sup>: fear of abandonment, Instability of interpersonal relationships, Identity disturbance, Impulsivity, Suicidal/self-injurious behaviors, Affective instability, Feelings of emptiness, Anger, and Transient paranoid/dissociative symptoms. Each subscale is rated with several items (ranged from 3 to 9). Feelings of emptiness is the only subscale with a single item. The BPD Checklist provides a total score that indicates the presence of BPD. Specifically, the authors proposed 67 as the clinical cut-point for diagnosis, and 100 as the inclusion criterion for psychotherapeutic treatment of the disorder, representing the cutoff between BPD and other PDs.<sup>18</sup> The BPD Checklist was translated into Spanish by two independent, native Spanish speakers with clinical expertise who were familiar both with the constructs being measured and with the target population and in accordance with the author's

supervision. The translators reached a consensus on a common version, which was then blindly back-translated by a native English speaker and compared with the original scale. Before final approval, a pilot study was undertaken with 20 subjects from the target population to ensure comprehensibility and feasibility. Semantic and conceptual equivalence were given priority throughout the adaptation process. The above procedures followed the standard recommendations for adaptation of questionnaires.<sup>26</sup> The author of the original BPD-Checklist version approved the final Spanish version. The Spanish version of the self-report is now available.

Impulsivity was assessed using the corresponding subscale of the Revised Diagnostic Interview for Borderlines (DIB-R),<sup>11</sup> Spanish version.<sup>27</sup> This subscale contains a score of Impulsive Behaviors Area (range 0–10), and a score of Impulsive Behaviors Scale (range 0–3). It was used to assess the presence and severity of symptoms of impulsivity in BPD (substance abuse/dependence, sexual deviance, self-harm, suicide attempts or/and threats, and other impulsivity patterns). Impulsivity was also measured with the Barratt Impulsiveness Scale (BIS-11),<sup>28</sup> Spanish version.<sup>29</sup> These self-report provides a total score and three subscales to measure impulse control: Cognitive impulsivity, Motor impulsivity, and Non-planning impulsivity.

Anxiety was assessed with the Spanish version of the State-Trait Anxiety Inventory (STAI).<sup>30</sup> Trait-anxiety is an enduring and permanent predisposition to react with anxiety to stressful situations. Depression was assessed with the Spanish version of the Beck Depression Inventory-II (BDI-II).<sup>31,32</sup>

Lastly, psychopathological severity was assessed during the first screening interview through the clinical variables of suicide attempts, self-harm behaviors, and psychiatric emergency admissions, and was confirmed by previous medical reports. When patients' information was not confirmed by medical reports, it was not considered for the analyses.

This strategy was chosen to increase the reliability of the data, as we were aware that patients may be underestimating the actual presence of these behaviors.

## Procedure

The psychopathological evaluation was carried out in four sessions by a psychiatrist (MF) and a clinical psychologist (NC), who interviewed the patient, recorded sociodemographic and clinical data, conducted a psychopathological examination, applied the SCID-II, SCID-I and DIB-R interviews, and administered the BPD Checklist, STAI-Trait and the BDI-II self-report, with the patient blinded to SCID-II results. The order in which the material was administered was the same for all patients. All patients completed the Spanish version of the BPD Checklist, the interviews, and self-reports.

## Data analysis

To contrast the distribution of demographic and clinical variables between BPD and non-BPD participants, bivariate analyses were performed with Chi Square or two-tailed Student's *t*-test. Additionally, to test differences between BPD and non-BPD groups, a two-tailed Student's *t*-test and Cohen's *d* were calculated for all BPD Checklist total and subscales. Intercorrelations between BPD scales were calculated.

To analyze concurrent and discriminant validity, Pearson correlations among the BPD Checklist subscales and between the BPD Checklist and the subscales and scores of the BPD SCID-II interview were calculated. *T*-tests were performed to compare the BPD Checklist of BPD and non-BPD participants, followed by estimations of Cohen's *d*. Two analyses were performed to determine, from a multivariate approach, the specificity of differences between the samples on the subscales and to provide the final key facets that were more specific to differentiate between affected and non-affected subjects. The first analysis included a logistic regression, using conditional entrance, where the predictors were the only domains that had had a significant effect in the previous bivariate analyses. To determine the specific relevant facets that are constitutive of the most discriminant domains, a second logistic regression analysis was performed. In this case, only the facets that were part of the significant domains of the previous logistic regression analysis were considered. As an approximation of the accuracy of the final obtained model, sensitivity and specificity parameters, including positive and negative predictive values, were reported. All statistical tests were considered assuming an alpha risk of 5%. The statistical analyses were performed using SPSS v20 and Mplus 6.

## Results

### Group comparability

The sociodemographic data, number of Axis I diagnoses and number of BPD criteria in the two samples are summarized in Participants and in Table 1. Group comparisons were

repeated with gender and age as covariates, to control for significant differences between the samples. We did not control for number of Axis I disorders and SCID-II BPD-traits, as these were inherent characteristics of BPD patients.

### Internal consistency

The internal consistency in the total sample was excellent (.95). Based on the BPD sample, the Cronbach's alpha of the BPD Checklist Total score was also excellent (.93). In the BPD sample, subscales' alpha's ranged between excellent and good (Fear of abandonment, Identity disturbance, Suicidal/self-injurious behaviors and Transient paranoid/dissociative symptoms subscales:  $\alpha \geq .78$ ) to acceptable (Instability interpersonal relationships, Impulsivity, Affective instability, and Anger subscales:  $\alpha > .65$ ). No alpha for a chronic feeling of emptiness (Subscale 7) was calculated because this criterion is assessed only through one item (Item 11).

The analysis of the item-scale correlations of the BPD Checklist indicates that in the BPD sample all items have a positive correlation with the scale, ranging from .22 to .74 (Item 7 of Identity disturbance subscale and Item 26 of Parasuicidal behavior subscale, respectively).

### Discriminant validity

Means, standard deviations, *t*-tests, and Cohen's *d* of the BPD Checklist items, subscales and total score in BPD and non-BPD samples are reported in Table 2. Comparing the two samples, the BPD patients showed significantly higher scores than the non-BPD patients on all items, except for items 8 and 20. Means in the BPD group ranged from .39 (Item 8 of the Impulsivity subscale: "gambling money") to 4.22 (Item 36 of the Affective instability subscale: "sudden anxiety, depressions, irritability") (.29 and 3.33 in the non-BPD group, respectively). Only two items, Item 8 (gambling of the Impulsivity subscale) and Item 20 (of the Identity disturbance subscale) did not discriminate significantly between BPD and non-BPD ( $p = .248$  and  $.078$ , respectively). Comparing the means for all subscales and the total score of the BPD Checklist in the two samples, the highest scores were observed in the BPD sample ( $p < .001$ ).

Cohen's *d* ranged from .53 to .89 for subscales of the BPD Checklist (Suicidal/self-injurious behaviors and Fear of abandonment, respectively). The total score of the BPD Checklist obtained a Cohen's *d* of .98. In relation to items, Cohen's *d* ranged from .11 (Item 8 of Impulsivity) to .84 (Item 44 of Anger) (see Table 2).

### Concurrent validity

The Pearson correlations among the BPD Checklist subscales for the total sample, controlling for gender and age are shown in Table 3. No differences were found when these variables were controlled. In general, the correlation coefficients were significant and positive in nine subscales ( $r \geq .35$ ,  $p < .01$ ). Identity disturbance consistently correlated highly with the Fear of abandonment and Transient paranoid/dissociative subscales (.79 and .73,



**Table 2** Internal consistency (Cronbach's  $\alpha$ ) in BPD sample and mean, standard deviation, and Cohen's  $d$  of the BPD Checklist in the two groups.

	BPD Sample (n=342)			Non-BPD sample (n=190)		<i>t</i>	<i>p</i>	Cohen's <i>d</i>
	Cronbach's $\alpha$	Mean	(SD)	Mean	(SD)			
<i>Subscales BPD Checklist</i>								
<i>1. Fear of abandonment</i>	.79	20.33	(7.92)	13.04	(8.76)	9.79	<.001	.89
Item 13		3.54	(1.56)	2.41	(1.97)	6.87	<.001	.64
Item 18		3.19	(1.42)	2.24	(1.74)	6.40	<.001	.60
Item 21		2.86	(1.80)	1.74	(1.77)	6.94	<.001	.63
Item 27		3.08	(1.85)	1.98	(1.97)	6.44	<.001	.58
Item 28		1.55	(1.85)	.91	(1.45)	5.15	<.001	.39
Item 43		3.46	(1.53)	2.43	(1.83)	6.58	<.001	.61
Item 45		2.67	(1.78)	1.44	(1.80)	7.60	<.001	.69
<i>2. Instability of interpersonal relations</i>	.65	8.62	(3.98)	5.52	(4.04)	8.55	<.001	.77
Item 32		2.45	(1.76)	1.53	(1.70)	5.85	<.001	.53
Item 40		3.45	(1.71)	2.43	(1.94)	6.07	<.001	.56
Item 42		2.72	(1.73)	1.56	(1.67)	7.47	<.001	.68
<i>3. Identity disturbance</i>	.78	21.17	(8.37)	14.08	(9.38)	8.68	<.001	.80
Item 7		1.16	(1.65)	.58	(1.25)	4.57	<.001	.40
Item 10		2.92	(1.80)	1.75	(1.79)	7.20	<.001	.65
Item 14		2.62	(1.80)	1.53	(1.67)	6.89	<.001	.63
Item 15		3.82	(1.35)	2.89	(1.65)	6.63	<.001	.62
Item 20		1.89	(1.63)	1.64	(1.59)	1.77	.078	.16
Item 30		2.78	(1.71)	1.78	(1.84)	6.26	<.001	.56
Item 34		3.06	(1.71)	2.19	(1.81)	5.50	<.001	.49
Item 46		2.94	(1.63)	1.72	(1.77)	8.00	<.001	.72
<i>4. Impulsivity</i>	.65	13.07	(7.42)	8.54	(6.68)	7.20	<.001	.64
Item 1		2.35	(1.80)	1.65	(1.74)	4.37	<.001	.40
Item 8		.39	(.95)	.29	(.87)	1.16	.248	.11
Item 12		1.70	(1.73)	1.01	(1.49)	4.87	<.001	.43
Item 17		1.47	(1.63)	.95	(1.39)	3.86	<.001	.34
Item 22		1.05	(1.56)	.58	(1.28)	3.74	<.001	.33
Item 24		1.65	(1.71)	.88	(1.42)	5.61	<.001	.49
Item 29		2.60	(1.93)	1.96	(1.83)	3.74	<.001	.34
Item 35		.65	(1.21)	.44	(.98)	2.16	.031	.19
Item 41		1.23	(1.68)	.77	(1.41)	3.33	.001	.30
<i>5. Suicidal/self-injurious behaviors</i>	.80	5.37	(4.58)	3.01	(4.12)	6.07	<.001	.54
Item 6		1.79	(1.75)	.86	(1.48)	6.45	<.001	.57
Item 9		2.07	(1.88)	1.27	(1.73)	4.98	<.001	.44
Item 26		1.51	(1.80)	.88	(1.56)	4.23	<.001	.37
<i>6. Affective instability</i>	.71	15.35	(3.83)	11.58	(5.56)	8.31	<.001	.79
Item 2		4.16	(1.00)	3.42	(1.41)	6.48	<.001	.61
Item 25		3.94	(1.26)	2.95	(1.79)	6.75	<.001	.64
Item 33		3.06	(1.65)	1.88	(1.78)	7.69	<.001	.69
Item 36		4.22	(1.19)	3.33	(1.71)	6.32	<.001	.60
<i>7. Emptiness</i>	–	4.14	(1.68)	3.04	(1.75)	7.73	<.001	.64
Item 11		4.14	(1.68)	3.04	(1.75)	7.73	<.001	.64
<i>8. Anger</i>	.67	10.31	(4.53)	6.37	(4.91)	9.33	<.001	.83
Item 3		3.36	(1.41)	2.44	(1.56)	6.98	<.001	.62
Item 5		1.20	(1.51)	.66	(1.24)	4.44	<.001	.39
Item 37		2.16	(1.89)	1.14	(1.58)	6.65	<.001	.59
Item 44		3.60	(1.55)	2.14	(1.92)	9.01	<.001	.84

Table 2 (Continued)

	BPD Sample (n = 342)			Non-BPD sample (n = 190)		t	p	Cohen's d
	Cronbach's $\alpha$	Mean	(SD)	Mean	(SD)			
9. Transient paranoid/dissociative	.79	18.32	(8.31)	11.79	(8.37)	8.66	<.001	.78
Item 4		2.30	(1.82)	1.49	(1.72)	5.02	<.001	.46
Item 16		2.85	(1.61)	1.84	(1.72)	3.86	<.001	.61
Item 19		3.32	(1.50)	2.45	(1.68)	5.99	<.001	.55
Item 23		1.10	(1.48)	.54	(1.15)	4.87	<.001	.42
Item 31		1.41	(1.66)	.75	(1.30)	5.08	<.001	.44
Item 38		2.92	(1.74)	1.97	(1.79)	5.97	<.001	.54
Item 39		3.04	(1.56)	1.91	(1.63)	7.86	<.001	.71
Item 47		1.40	(1.60)	.86	(1.45)	3.96	<.001	.35
BPD Checklist Total Score	.93	116.64	(37.96)	76.97	(43.17)	10.59	<.001	.98

respectively). Suicidal/self-injurious behaviors obtained the lowest cross-domain correlations with Impulsivity and Instability interpersonal relationships (.35 and .38, respectively).

Table 4 shows the Pearson correlations among the BPD Checklist and score of the BPD SCID-II interview and other instruments. Controlling for gender and age, correlations showed similar associations. In general, BPD Checklist subscales were strongly and positively related to all the corresponding criteria of the BPD SCID-II total score ( $r \geq .34$ ,  $p < .01$ ). Only Suicidal/self-injurious behaviors of the BPD Checklist obtained the lowest correlation with Criterion 4 of Impulsivity of the SCID-II ( $r = .05$ ) (see Table 4).

Most instruments were strongly correlated. In relation to the DIB-R, correlations were generally positive. The Impulsivity subscale and the total score of the BPD Checklist correlated highly with the Impulsive behaviors area and the Impulsivity scale of the DIB-R ( $r \geq .36$ ;  $p < .01$ ).

Regarding the BIS-11, the total score correlated with the BPD Checklist, especially the Impulsivity subscale ( $r = .45$ ). Cognitive and motor impulsivity of the BIS-11 correlated highly with Identity disturbance ( $r = .35$ ) and Impulsivity ( $r = .44$ ), respectively, of the BPD Checklist, but not with Suicidal/self-injurious behaviors ( $r = .09$ ;  $p < .01$ ). Moreover, Unplanned impulsivity of the BIS-11 only correlated positively with Identity disturbance and Impulsivity of the BPD Checklist ( $r = .24$  and  $.32$ ,  $p < .01$ ) (Table 4).

In relation with other self-reports, all the scales of the BPD Checklist were significantly and positively correlated with the BDI-II and the STAI-T (especially higher correlations with Transient paranoid/dissociative symptoms, and Affective instability) (Table 4).

Regarding the severity variables, the number of suicide threats correlated positively with all the subscales of the BPD Checklist, especially with Fear of abandonment ( $r = .29$ ,  $p < .01$ ). Suicide attempts and self-injurious behavior variables correlated with the Suicidal/self-injurious behaviors scale of BPD Checklist ( $r = .40$  and  $.35$ , respectively;  $p < .01$ ). The Emptiness scale of the BPD Checklist did not correlate with these variables. The number of psychiatric admissions did not correlate with any scales of the BPD Checklist,

except for Suicidal/self-injurious behaviors ( $r = .15$ ,  $p < .01$ ). Partial correlations, controlling for gender and age show equal associations.

Using the logistic regression model, the obtained model of the BPD Checklist exhibited a sensitivity of 68%, a specificity of 66%, a positive predictive value (PPV) of 78.3%, and a negative predictive value (NPV) of 53%.

Based on the c-criterion as defined by Jacobson & Truax,<sup>33</sup> the cut-off between BPD and other PDs is 98.08.

## Discussion

The current study analyzed the psychometric properties of the Spanish version of the BPD Checklist in a sample of BPD outpatients, comparing it in a non-borderline PD sample. In general, this measure showed adequate screening properties for the assessment of BPD symptoms. The BPD Checklist had excellent internal consistency and good discriminant and convergent validity. Also, whereas many measures are available to assess BPD on a categorical and dimensional level,<sup>12</sup> the BPD Checklist allows assessing this disorder through specific complaints detailed in the past month.

Our results suggest that the psychometric properties of the Spanish version of the BPD Checklist are similar to those published previously of the original version of the instrument. Taking into account the variation in the number of items of each of the nine subscales, the results obtained in our study indicate that the internal consistency of the total score and the subscales was mostly satisfactory, in accordance with previous studies.<sup>18,24</sup> The exception is the Emptiness subscale. As it has a single item, it is not possible to analyze this property. Taking into account the configuration of the rest of the eight subscales of the BPD Checklist, and considering the conceptual difficulty of this diagnostic criterion in the DSM, it would be interesting to consider the possibility of increasing the number of items to improve the assessment and diagnosis of BPD.

The Spanish version of the BPD Checklist showed adequate discriminant validity between BPD and non-BPD

**Table 3** Pearson's Correlation Coefficients among BPD Checklist subscales in the total sample ( $N = 532$ ) controlling for age and gender variables.

	Abandonment	Instability interper	Identity	Impulsivity	Suicidal/self-injurious	Affective instabil	Emptiness	Anger	Paranoid/dissociate
Abandonment	–								
Instability interper.	<b>.61</b>	–							
Identity	<b>.79</b>	<b>.67</b>	–						
Impulsivity	<b>.58</b>	<b>.47</b>	<b>.61</b>	–					
Suicidal/self-injurious	<b>.58</b>	<b>.38</b>	<b>.49</b>	<b>.35</b>	–				
Affective instabil	<b>.72</b>	<b>.59</b>	<b>.68</b>	<b>.51</b>	<b>.53</b>	–			
Emptiness	<b>.61</b>	<b>.50</b>	<b>.64</b>	<b>.48</b>	<b>.39</b>	<b>.63</b>	–		
Anger	<b>.68</b>	<b>.50</b>	<b>.58</b>	<b>.52</b>	<b>.56</b>	<b>.69</b>	<b>.53</b>	–	
Paranoid/dissociate	<b>.70</b>	<b>.68</b>	<b>.73</b>	<b>.56</b>	<b>.51</b>	<b>.63</b>	<b>.57</b>	<b>.66</b>	–

Note: Abandonment = Fear of abandonment; Instability interper. = Instability of interpersonal relationship; Identity = Identity disturbance; Suicidal/self-injurious = Suicidal/self-injurious behaviors; Affective instabil. = Affective instability; Paranoid/Dissociative = Transient paranoid/dissociative symptoms  
 Bold type: Correlations are significant at  $p < .01$  (bilateral).

**Table 4** Correlations between BPD Checklist subscales and SCID-II interview Total Score, DIB-R interview, BIS-11, BDI II and STAI-T self-reports in the total sample ( $N = 532$ ), controlling for age and gender variables.

	SCID-II Total score	DIB-R Area impulsivity	DIB-R Scale impulsivity	BIS-11 Total score	BIS-11 Cognitive Impulsivity	BIS-11 Motor impulsivity	BIS-11 Non-planning impulsivity	BDI II	STAI-T
1. Abandonment	<b>.51</b>	<b>.37</b>	<b>.33</b>	<b>.36</b>	<b>.27</b>	<b>.38</b>	<b>.16</b>	<b>.60</b>	<b>.54</b>
2. Instability interpersonal	<b>.43</b>	<b>.34</b>	<b>.31</b>	<b>.34</b>	<b>.28</b>	<b>.34</b>	<b>.16</b>	<b>.54</b>	<b>.47</b>
3. Identity disturbance	<b>.51</b>	<b>.36</b>	<b>.31</b>	<b>.43</b>	<b>.35</b>	<b>.43</b>	<b>.24</b>	<b>.59</b>	<b>.53</b>
4. Impulsivity	<b>.45</b>	<b>.44</b>	<b>.36</b>	<b>.45</b>	<b>.27</b>	<b>.44</b>	<b>.32</b>	<b>.39</b>	<b>.28</b>
5. Suicidal/self-injurious	<b>.34</b>	<b>.30</b>	<b>.29</b>	<b>.14</b>	<b>.09</b>	<b>.18</b>	<b>.01</b>	<b>.44</b>	<b>.38</b>
6. Affective instability	<b>.48</b>	<b>.32</b>	<b>.28</b>	<b>.35</b>	<b>.26</b>	<b>.42</b>	<b>.12</b>	<b>.60</b>	<b>.60</b>
7. Emptiness	<b>.47</b>	<b>.30</b>	<b>.25</b>	<b>.30</b>	<b>.22</b>	<b>.35</b>	<b>.12</b>	<b>.56</b>	<b>.51</b>
8. Anger	<b>.44</b>	<b>.32</b>	<b>.29</b>	<b>.30</b>	<b>.22</b>	<b>.37</b>	<b>.06</b>	<b>.53</b>	<b>.48</b>
9. Paranoid/dissociative	<b>.50</b>	<b>.34</b>	<b>.33</b>	<b>.41</b>	<b>.34</b>	<b>.44</b>	<b>.18</b>	<b>.60</b>	<b>.45</b>
Total score BPD Checklist	<b>.58</b>	<b>.43</b>	<b>.39</b>	<b>.45</b>	<b>.34</b>	<b>.47</b>	<b>.21</b>	<b>.67</b>	<b>.58</b>

Note: Abandonment = Fear of abandonment; Instability interpersonal = Instability of interpersonal relationship; Suicidal/self-injurious = Suicidal/self-injurious behaviors; Paranoid/dissociative = Transient paranoid/dissociative symptoms. DIB-R = Revised Diagnostic Interview for Borderlines; BIS-11 = Barratt Impulsivity Scale-11; BDI-II = Beck Depression Inventory – II; STAI-T = State-Trait Anxiety Inventory.

Bold type: Correlations are significant at  $p < .01$  (bilateral).



patients. With regard to the total score of the instrument, BPD patients present significantly higher scores. According to the original version, a cut-off score of 67 is indicative of BPD and a cut-off score of 100 distinguishes between BPD and other (PD-) psychopathology. A score of 100 or higher was proposed as inclusion criterion for psychotherapeutic treatment of the disorder. Using the same method based on Jacobson & Truax' c-criterion,<sup>33</sup> we found almost exactly the same cutoff distinguishing between BPD from other PDs as in the original version (Dutch) paper: a total score of 98.08 or higher in our study (100 in two samples, and 99 in original version, respectively). This is very near the value of 99.23 reported by Bloo et al.<sup>18</sup> The present study did not include a nonpatient group, so that we could not replicate the criterion distinguishing BPD from nonpatients.

With regard to the subscales, BPD patients presented significantly higher mean scores than non-BPD patients on all of them, except for 3 items out of the total of 47 (Items 8 and 35, of the Impulsivity subscale, and Item 20, of the Identity disturbance subscale), on which they tended to score higher without reaching significance. In general, our results agree with those obtained in the original version of the BPD Checklist,<sup>17,24</sup> and support the capacity of the instrument to differentiate between patients with and without BPD. These results suggest that this instrument could be considered a useful tool for screening and diagnosis of BPD in a short period of time in clinical samples.

Our findings of concurrent validity between the BPD Checklist, the SCID-II, and other self-reports are consistent with previous studies in clinical and nonclinical samples.<sup>17,24</sup> In relation to SCID-II, as expected, the total score of the BPD Checklist correlates significantly and positively with the interview. The correlation coefficients of the subscales of BPD Checklist also correspond moderately to strongly with the corresponding SCID-II criteria. These data coincide with those obtained previously with the original version of the instrument<sup>17,24</sup> and with other instruments.<sup>34,35</sup> Given that the BPD Checklist measures a subjective burden of BPD over short period (e.g., during the last month) and the SCID interview is a clinical diagnosis of a patient's lifetime BPD, our coefficients indicate that the combination of both instruments would be the most efficacious and appropriate way to assess BPD.

Our study suggests that BPD patients generally obtain higher scores on impulsivity. Specifically, BPD patients showed more impulsivity, according to the results obtained in the Impulsivity area and the Impulsivity Scale of the DIB-R interview. In relation to the BIS-11, only the total score is clearly related to high scores on the BPD Checklist, and, to a lesser extent, to different subscales of the BIS-11 self-report. In this sense, although the BIS-11 has historically been widely used in clinical studies to investigate impulsivity in BPD,<sup>36-38</sup> recent studies have questioned its ability to discriminate patients with BPD with regard to self-reported impulsivity.<sup>39</sup> The possible lack of concordance between the results of the DIB-R and the BIS-11 could be related more to the lack of a clear definition of impulsivity as it manifests in the variety of measures of the trait, that is, interview or self-report,<sup>36</sup> which could be measuring different aspects of impulsivity. More specifically, the DIB-R interview of Zanarini<sup>11</sup> evaluates the presence of impulsivity in the past two years. However, the BIS-11 is self-reported

by the patient, and impulsivity is defined according to three aspects: cognitive, motor, and non-planning, with items phrased in more general terms, and not representing BPD-specific forms of impulsivity. Unfortunately, there are currently no prior studies analyzing these data to compare with our results.

The data obtained in relation to the other instruments are interesting. Higher scores on the BPD Checklist are associated with clinical depression (BDI-II) and clinical anxiety (STAI-T), which indicates the greater psychopathological complexity of these patients. On another hand, BPD patients present an average number of disorders as well as a greater number of threats of suicide, suicide attempts, and self-injurious behaviors (significantly higher in the BPD sample). These data suggest that the BPD patients had a stronger association with affective and anxiety disorders than did the non-BPD sample, and these are indicators of greater severity of the disorder.<sup>39,40</sup>

This study has some limitations. First, the sample was recruited from a psychiatric outpatient setting, so the results cannot be generalized to clinical BPD samples. Future research should focus on the functioning of the BPD Checklist including other groups of BPD patients to study its psychometric properties. Second, our paper analyzes the reliability of the instrument by means of internal consistency, as well as convergent validity through an interview that follows the same categorical criteria as the DSM. Future research should investigate the reliability with test-retest reliability and convergent and discriminate validity with other dimensional methods, for example, the Personality Inventory Disorder-5 (PID-5).<sup>41</sup> In addition, future studies should consider the possibility of eliminating some of items and/or including new items to improve the reliability of the instrument, concretely sensitivity and specificity. Finally, future research should focus on the functioning of the BPD Checklist as a treatment outcome measure.

## Conclusions

To conclude, the results of our study support previous studies showing the reliability and validity of the Spanish version of BPD Checklist to measure symptoms in BPD patients. This instrument offers an opportunity to assess clinical symptoms of BPD, and it also provides a more reliable understanding of a patient's clinical symptoms. The BPD Checklist is very relevant for clinicians who want to evaluate BPD.

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## Author's contribution

NC and MF conceived and designed the study. SV carried out the statistical analysis. AA completed the analysis and reviewed the final version of manuscript. OA, JLM, JARQ and

MC participated in literature review. VN has participated in the English revision. All authors read and approved the final manuscript.

## Conflict of interest

The authors have no conflict of interest to declare.

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