



Psychometric properties of the Spanish Yale-Brown Obsessive-Compulsive Scale – Second Edition

Eric A. Storch^{1,*}, Jessica SC. Cheng¹, Miranda Higham², Josselyn S. Muñoz¹, Vanessa Zavala Cruz¹, Dayan Berrones¹, Diana P. Obando³, Jacey L. Anderberg^{1,4}, Renee M. Frederick^{1,5}, Vissente Tapia-Cuevas⁶, Macarena Churrua Muñoz^{6,7}, Constanza Uribe Villar⁶, Pablo R. Moya^{6,7,8}, Marcos E. Ochoa-Panaifo⁹, Mayra C. Martinez Mallen¹⁰, Andrew D. Wiese¹, Caitlin M. Pinciotti¹, Melisa N. Sagarnaga^{11,12}, Joseph F. McGuire¹³, Ogechi C. Onyeka¹, María B. Moyano^{14,15}, Latin American Trans-Ancestry INitiative for OCD genomics (LATINO), Brazilian Obsessive-Compulsive Spectrum Disorder Working Group (GTTOC), Wayne K. Goodman¹, James J. Crowley¹⁶

¹ Psychiatry and Behavioral Sciences, Baylor College of Medicine, Houston, Texas, United States

² Department of Education, University of Florida, Gainesville, Florida, United States

³ Facultad de Psicología y Ciencias del Comportamiento, Universidad de La Sabana, Chía, Cundinamarca, Colombia

⁴ Department of Psychology, University of Nebraska-Lincoln, Lincoln, Nebraska, United States

⁵ Department of Psychology, University of Houston, Houston, Texas, United States

⁶ Centro Interdisciplinario de Neurociencia de Valparaíso, Valparaíso, Chile

⁷ Centro de Estudios Traslacionales en Estrés y Salud Mental C-ESTRES, Valparaíso, Chile

⁸ Instituto de Fisiología, Facultad de Ciencias, Universidad de Valparaíso, Valparaíso, Chile

⁹ Universidad Privada del Norte, Lima, Peru

¹⁰ Centro Neurológico, Centro Médico ABC, Mexico City, Mexico City, Mexico

¹¹ Facultad de Psicología, Universidad de Buenos Aires, Buenos Aires, Argentina

¹² Peer Support Argentina, Buenos Aires, Argentina

¹³ Johns Hopkins University School of Medicine, Baltimore, Maryland, United States

¹⁴ Centro Interdisciplinario de Tourette, TOC, TDAH y Trastornos Asociados (CITA), Buenos Aires, Argentina

¹⁵ Departamento de Investigación, Asociación de Psiquiatras de Argentina (APSA), Buenos Aires, Argentina

¹⁶ Department of Genetics, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States

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ABSTRACT

The Yale-Brown Obsessive-Compulsive Scale, Second Edition (Y-BOCS-II) is an evidence-based clinician-rated measure for assessing the presence and severity of obsessive-compulsive symptoms. The Spanish version of the Y-BOCS-II has not yet been validated. The present study examines the psychometric properties of the Spanish Y-BOCS-II (Spanish-Y-BOCS-II) in adults with obsessive-compulsive disorder (OCD) who are of Hispanic/Latino ancestry. The Spanish-Y-BOCS-II was administered to 1805 adults with OCD. Participants also completed a battery of measures assessing OCD, depression, and anxiety symptoms. The internal consistency for the Symptom Checklist (Kuder-Richardson-20=0.92), Obsession Severity ($\alpha=0.87$), Compulsion Severity ($\alpha=0.86$), and Total Severity ($\alpha=0.92$) were high. The inter-rater reliability for the Severity Scale (intraclass correlations=0.98) was excellent. Confirmatory factor analyses showed a marginally acceptable fit with the Obsessions and Compulsions two-factor model; subsequent exploratory factor analysis revealed a one-factor solution consistent with a Total score including all items. Satisfactory construct validity was observed, supported by the strong correlations with other measures of obsessive-compulsive symptom severity and moderate correlations with measures of depression and anxiety symptoms. Overall, the Spanish-Y-BOCS-II demonstrates acceptable reliability and validity properties.

* Corresponding author at: Department of Psychiatry and Behavioral Sciences, Baylor College of Medicine, 1977 Butler Blvd, Houston, TX, 77030.

E-mail address: Eric.Storch@bcm.edu (E.A. Storch).

The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS, Goodman et al., 1989a, b) is the clinician-administered gold-standard instrument for assessing obsessive-compulsive symptom presence and severity. It contains a Symptom Checklist and a Severity Scale. On the Symptom Checklist, obsessions and compulsions are grouped by symptom categories (i.e. aggressive, contamination, sexual, hoarding/saving, religious, symmetry/exactness, somatic, cleaning, checking, repeating, counting, ordering/arranging, hoarding/collecting) and rated dichotomously for their current and past presence. The Severity Scale contains 10 items that evaluate the time, interference, distress, resistance, and control related to obsessions and compulsions. Items on the Severity Scale are rated on a 0 to 4 scale, resulting in a possible total score ranging from 0 to 40, with higher scores indicating more severe obsessive-compulsive symptoms.

The Y-BOCS has been widely used and demonstrates treatment sensitivity, good convergent and divergent validity, high internal consistency, and inter-rater reliability across numerous studies (Goodman et al., 1989a, 1989b; Lewin et al., 2011; Tolin et al., 2005; Woody et al., 1995). Divergent validity is fair with modest relations found with depressive and anxiety symptoms (Goodman et al., 1989b; Woody et al., 1995). Factor structure for the Severity Scale has yielded several different findings including Obsession and Compulsion factors or Impairment and Resistance/Control factors (Amir et al., 1997; McKay et al., 1995; Mortiz et al., 2002; Storch et al., 2005). Discrepant factor structures for the Symptom Checklist have also been reported (Cullen et al., 2007; Feinstein et al., 2003). Despite the broad use of the Y-BOCS, limitations have been noted, including poor reliability of the resistance to obsessions item on the Severity Scale, lack of clarity on how to assess avoidance, concerns about capturing symptom severity among the most severe patients, and the need for greater details and an update on the Symptom Checklist (Woody et al., 1995; Deacon and Abramowitz, 2005). Accordingly, the Yale-Brown Obsessive-Compulsive Scale – Second Edition (Y-BOCS-II) (Storch et al., 2010) was created to address these concerns while also retaining the core structure of the Y-BOCS, with both a Symptom Checklist and Severity Scale. In Y-BOCS-II, the Symptom Checklist is not formally divided by different symptom domains, and the items are reworded, expanded, and added to better capture different clinical presentations and the role of avoidance in obsessive-compulsive disorder (OCD). The Severity Scale also underwent various changes including implementing a 0 to 5 Likert scale (instead of 0 to 4), replacing the resistance against obsessions item with the obsession-free interval item, integrating the concept of avoidance into the responses, and reordering the items.

A number of investigations have supported the psychometric properties of the Y-BOCS-II. In two studies that utilized U.S. based samples, the Y-BOCS-II demonstrated high internal consistency (Cronbach's $\alpha=0.83-0.89$), short term stability (ICC=0.85), and inter-rater reliability (ICC=0.85-0.99) for Severity Scale scores (Storch et al., 2010; Wu et al., 2016). Construct validity was supported by large correlations with other clinician-rated OCD measures (Clinical Global Impression-Severity, $r = 0.84-0.87$; National Institute of Mental Health Global Obsessive Compulsive Scale, $r = 0.84-0.85$), but small to moderate correlations with self-report measures of OCD symptomatology (Obsessive-Compulsive Inventory-Revised, $r = 0.22$), depressive symptoms (Inventory of Depressive Symptomatology, $r = 0.35$, Depression Anxiety Stress Scale-Depression, $r = 0.41$), anxiety symptoms (Depression Anxiety Stress Scale-Anxiety, $r = 0.24$; Penn State Worry Questionnaire, $r = 0.20$), impairment (Sheehan Disability Scale, $r = 0.62$) and impulsiveness (Barratt Impulsiveness Scale, $r = 0.23$).

The Y-BOCS-II has been translated into several languages with studies demonstrating strong psychometric properties across four international clinical samples. With respect to the Italian Y-BOCS-II, Melli et al. (2015) reported good internal consistency (Cronbach's $\alpha=0.83$), adequate test-retest reliability over 2 weeks (ICC=0.74), and high inter-rater reliability (ICC=0.96). The Y-BOCS-II Severity scale was strongly correlated with self-reported OCD, with stronger associations

observed with the Y-BOCS-II versus the Y-BOCS. The Y-BOCS-II was moderately correlated with self-reported depressive and anxiety symptoms and weakly correlated with self-reported worries. Castro-Rodrigues et al. (2018) found the European Portuguese translation of the Y-BOCS-II to demonstrate excellent internal consistency ($\alpha=0.96$) and interrater reliability ($r = 0.94$). The Portuguese Y-BOCS-II correlated strongly with self-reported OCD symptoms and moderately with self-reported anxiety and depressive symptoms. The Chinese version of Y-BOCS-II demonstrated high internal consistency ($\alpha=0.87-0.90$) and adequate 1-week test-retest reliability (ICC=0.63). It is also strongly correlated with clinician-rated OCD severity and self-reported depressive and anxiety symptoms (Zhang et al., 2019). Lastly, the Dutch version of Y-BOCS-II demonstrates good internal consistency ($\alpha=0.84$), 2-week test-retest reliability (ICC=0.89), inter-rater reliability (ICC=0.98), and strong correlations with clinician- and self-rated OCD symptomology (Alić et al., 2022).

Overall, the Y-BOCS-II has demonstrated sound psychometric properties but has not been evaluated in Spanish, which represents the fourth most commonly spoken language in the world (Dietrich and Hernandez, 2022; Dyvik, 2024). There is also a pressing need to increase access to care among Latino individuals with OCD, as OCD is often under-studied and under-treated in this population (Perez et al., 2022; Wetterneck et al., 2012). The development and validation of the Spanish-Y-BOCS-II could be a viable first step to addressing this gap in service and reducing mental health disparities. Lastly, given the criteria identified for evidence-based assessments in OCD and related conditions (Inieta-Sepúlveda et al., 2014; McGuire et al., 2012; Rapp et al., 2016), it is important to further examine the psychometric properties of the Y-BOCS-II in separate samples. Accordingly, this study evaluated the following psychometric characteristics of the Spanish-Y-BOCS-II for currently reported obsessive-compulsive symptoms, including: (1) internal consistency, (2) inter-rater reliability, (3) convergent and divergent validity with measures of OCD, impairment, anxiety, and depressive symptoms, and (4) the factorial structure of the Spanish-Y-BOCS-II severity scale in a Spanish speaking sample.

1. Methods

1.1. Recruitment and eligibility criteria

Participants were recruited across a large network of recruitment sites primarily in Latin America and the United States (Crowley et al., 2024). Participants were recruited either in-person, through online and social media advertisements, or through a country-specific online screening process (www.latinostudy.org). All participants are Spanish speakers between 18 and 88 years of age, have experienced current or past obsessive-compulsive symptoms, and are of self-reported Latino and/or Hispanic ancestry, defined by having at least one biological grandparent born in Latin America. The current analysis included only participants with a confirmed OCD diagnosis through a diagnostic clinical interview.

1.2. Measures

Yale-Brown Obsessive-Compulsive Scale- Second Edition (Y-BOCS-II, Storch et al., 2010). The Y-BOCS-II is a clinician-rated semi-structured instrument designed to assess the presence and severity of obsessive-compulsive symptoms. A detailed description of the measure is reported above. The Y-BOCS-II was not previously validated for use in Spanish and was subject to a thorough translation, back translation, and cross-cultural adaptation and validation process prior to implementation in the current study. First, two investigators performed independent translations. A consensus was then made by another investigator, and discordances were reviewed by a fourth investigator. Second, an English-certified proficient investigator performed a back-translation, which was then evaluated by the original author of the measure for

adjustments. Lastly, the final version was submitted to a test phase where 40 participants were interviewed about the clarity and accuracy of the instruments. Final instrument adjustments were made according to the test phase results. After administering the Spanish-Y-BOCS-II, clinicians also rated the “resistance to obsessions” item from the Y-BOCS to allow Y-BOCS scores to be obtained, due to the item overlap of the Y-BOCS-II and the Y-BOCS¹. The Y-BOCS-II 5-point scale was converted to a 4-point scale, by converting all 5 responses to 4 s, to match the scoring for the original Y-BOCS. Using this method, the Y-BOCS Severity Scale was calculated (Goodman et al., 1989a, 1989b).

Clinical Global Impression-Severity (CGI-S, Guy, 1976). The CGI-S is a widely used, one-item, clinician-rated instrument designed to assess the severity of patient psychopathology. Global severity rating can range from 0 (no illness) to 6 (extremely severe), with a higher score indicating more severe and impairing psychopathology. The CGI-S is treatment sensitive and has been widely used in a number of psychological and psychiatric treatment trials, including OCD (Franklin et al., 2011; Geller et al., 2001; Hollander et al., 2003; Simpson et al., 2004).

Obsessive-Compulsive Inventory-4 (OCI-4, Abramovitch et al., 2021). The OCI-4 is a 4-item ultra-brief, self-report screening scale designed to measure OCD symptoms. The items each assess a different dimension of OCD (ordering, checking, washing, and obsessing) and are rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The OCI-4 demonstrates good psychometric properties, including good test-retest reliability, validity, prediction of clinical OCD, and sensitivity to treatment (Abramovitch et al., 2021).

Patient Health Questionnaire-9 (PHQ-9, Kroenke et al., 2001). The PHQ-9 is a self-report measure for depression symptoms experienced in the past two weeks. It includes 9 items that correspond to the diagnostic criteria for major depressive disorder, and the items are rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Items are summed with a higher score indicating greater symptom severity. The PHQ-9 has demonstrated strong psychometric properties and good sensitivity and specificity for identifying major depressive disorder (Burdzovic, Andreas and Brunborg, 2017; Kroenke et al., 2001; Negeri et al., 2021; Spitzer et al., 1999).

Generalized Anxiety Disorder-7 (GAD-7, Spitzer et al., 2006). The GAD-7 is a self-report questionnaire designed to measure anxiety symptoms experienced in the past two weeks. It includes 7 items rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). The total score is obtained by summing all items, with a higher score indicating more severe anxiety. The GAD-7 is psychometrically strong and demonstrates good sensitivity and specificity for identifying generalized anxiety disorder (Johnson et al., 2019; Plummer et al., 2016; Spitzer et al., 2006).

1.3. Procedures

Study procedures were reviewed and approved by the respective Institutional Review Board of all recruiting sites. All adult participants provided written informed consent. Clinician-rated measures (i.e. Y-BOCS-II, Mini International Neuropsychiatric Interview [MINI], CGI-S) were administered by trained evaluators who achieved certification in measurement administration and were supervised by the local site lead investigator. All evaluators were required to review Y-BOCS-II and MINI training videos and score alongside the Y-BOCS-II and MINI training videos. Both Y-BOCS-II and MINI videos were developed and reviewed by an expert multi-national committee with extensive experience with psychodiagnostic testing and administering the Y-BOCS and Y-BOCS-II. Committee members identified consensus scoring for all Y-BOCS-II training videos and individual Y-BOCS-II items. Evaluators who did not meet basic proficiency (i.e., <80 % Y-BOCS-II accuracy) completed additional training until they met proficiency. A similar process was used to evaluate proficiency for MINI administration and scoring, and supplemental training was provided for those who were not able achieve inter-rater reliability with the training materials. Evaluators who were

not independently licensed attended regular supervision provided by the local lead investigator, or another approved member of the local study team to review MINI and Y-BOCS-II administration and scoring. All local lead investigators were required to complete a monthly attestation indicating they provided appropriate supervision and approved all data collected by their team, including Y-BOCS-II, MINI diagnostic status, CGI-S, and self-report measures. Y-BOCS-II scores were also independently reviewed by a data quality committee who provided feedback and suggestions to improve reliability. Self-reported measures (i.e., OCI-4, PHQ-9, GAD-7) were then completed by the participants during the same visit. The assessment protocol was uniform across all participating sites. See Crowley et al. (2024) for a full description of the study protocol.

1.4. Analytic plan

The following analyses were completed in SPSS version 29.0 (IBM SPSS Statistics for Windows, version 29.0 (IBM Corp., Armonk, N.Y., USA)). Independent sample *t*-tests were used to examine sex differences. Only one individual identified as intersex and was therefore not included in this analysis. Internal consistency of the Spanish-Y-BOCS-II Symptom Checklist was determined using the Kuder-Richardson-20 formula; Cronbach’s alpha (Cronbach, 1951) was used to determine the internal consistency of the Spanish-Y-BOCS-II Symptom Severity scale, as well as the Obsession and Compulsion subscales separately. Internal consistency estimates above 0.70 were considered adequate (Nunnally and Bernstein, 1994). The intraclass correlation coefficient (ICC) was calculated using a mixed model to determine interrater reliability across three raters. An $ICC \geq .75$ was considered adequate; $ICC \geq .90$ was considered excellent (Koo and Li, 2016).

Confirmatory factor analyses were used to examine the factor structure of the Spanish-Y-BOCS-II using MPlus version 8 (Muthén and Muthén, 1998–2017). The initial model evaluated was the two-factor, Obsession and Compulsion model (Storch et al., 2010), followed by the Interference/Severity and Resistance/Control two-factor model (Amir et al., 1997; Storch et al., 2005), and finally the one-factor model. Although data gathered were technically ordinal, data were treated as continuous, as there were more than five response options (Rhemtulla et al., 2012). Appropriate model fit was determined by using established criteria for different fit indices (e.g., root mean square error approximation (RMSEA; cutoff <0.06)), comparative fit index (CFI; cutoff >0.90), Tucker-Lewis index (TLI; cutoff >0.90), standardized root mean square residual (SRMR; cutoff <0.08), and Satorra-Bentler chi-square difference tests (Byrne, 2001; Hu and Bentler, 1999). Subsequent exploratory factor analyses were completed in SPSS version 29.0 using principle-axis factoring with a promax rotation. Factors were selected based on eigenvalues greater than 1, scree-plot analysis, and theoretical interpretability. Items were considered as loading on a factor when they had a pattern matrix value $\geq .40$.

Finally, zero-order correlations were calculated to determine the convergent and divergent validity between the Spanish-Y-BOCS-II, Spanish-Y-BOCS, CGI-S, OCI-4, PHQ-9, and GAD-7. Two-tailed tests and an alpha level of 0.05 were used for each analysis.

2. Results

Participants. The sample for the current study consisted of 2666 participants diagnosed with OCD. Seventy-three participants were removed for not completing at least 50 % of the survey items, and 788 participants were removed because their Y-BOCS-II was administered in English or Portuguese. Therefore, the sample used for the current study was comprised of 1805 participants. The average age of the participants was 31.32 years old and participants had attended an average of 15.45 years of school. Most participants self-identified as female (69.1 %), straight (82.1 %), having graduated from college (37.0 %), and earning about the same income as others in their home country (33.6 %).

Demographic information is provided in Table 1.

Inclusion criteria considered participants of Latino, Hispanic, or Brazilian ancestry if they had at least one grandparent who was born in Latin America. The majority (69 %) of participants self-identified as Hispanic or Latino. Table 1 reflects what participants self-reported in terms of race and ethnicity using a previously established approach (Pato et al., 2013).

There were statistically significant sex differences on the Spanish-Y-BOCS-II; females ($M = 20.74, SD=8.76$) reported greater symptom severity ($p<.001$) than males ($M = 19.05, SD=8.70$), with small effects (Cohen's $d = 0.19$). Age was not significantly associated with symptom severity. Individual Spanish-Y-BOCS-II item scores with endorsement frequencies are shown in Table 2. Thirty-one participants (1.72 %) scored above 40 on the Spanish-Y-BOCS-II.

Table 1
Self-reported demographic information.

Variable	N	Percentage
Sex		
Female	1246	69.1 %
Intersex	1	.1 %
Male	556	30.8 %
Gender		
Gender Queer/Non-Binary	18	1.1 %
Man	526	30.7 %
Other	6	.3 %
Woman	1162	67.9 %
Sexual Orientation		
Bisexual	184	11.1 %
Lesbian/Gay	73	4.4 %
Prefer to Self-Identify	40	2.4 %
Straight	1360	82.1 %
Race		
African American or Black	10	.6 %
American Indian/Alaskan Native	93	5.4 %
Asian	3	.2 %
More than One Race	300	17.5 %
Native Hawaiian/Pacific Islander	1	.1 %
Unknown	837	48.8 %
White	471	27.4 %
Ethnicity		
African American	4	.2 %
All Other Asian	1	.1 %
Ashkenazi	2	.1 %
European/Caucasian	15	.9 %
Hispanic or Latino	1173	69 %
Multi-Ethnic	391	23 %
Native American	51	3 %
Southeast Asian	3	.2 %
Unknown	59	3.5 %
Country of Data Collection		
Argentina	115	6.4 %
Bolivia	238	13.2 %
Chile	346	19.2 %
Columbia	185	10.2 %
Ecuador	18	1.0 %
El Salvador	27	1.5 %
Mexico	383	21.2 %
Paraguay	82	4.5 %
Peru	411	22.8 %
Education		
Completed Elementary School	43	2.5 %
Completed High School	224	13.2 %
Did Not Finish Elementary School	3	.2 %
Graduated from College	631	37.0 %
Post-College Education	172	10.1 %
Some College	505	29.6 %
Technical College	126	7.4 %
Monthly Income (Compared to Average in Home Country)		
Much Less	304	18.6 %
Somewhat Less	306	18.7 %
About the Same	548	33.6 %
Somewhat More	371	22.7 %
Much More	104	6.4 %

Note. N = number of participants; average age=31.32 years; average number of years in school=15.45.

scored above 40 on the Spanish-Y-BOCS-II.

2.1. Reliability

Internal consistency. Internal consistency was high for the Spanish-Y-BOCS-II Checklist total score (KR20=0.92) and the Severity Scale ($\alpha=0.92$), as well as the Obsession ($\alpha=0.87$) and Compulsion ($\alpha=0.86$) Severity subscales.

Inter-rater reliability. Inter-rater reliability across three separate raters for the Spanish-Y-BOCS-II, which was evaluated using a subset of 40 participants from the overall sample, was excellent (ICC=0.98).

2.2. Factor structure

Confirmatory factor analysis. We initially evaluated the fit of the two-factor, Obsessions (items 1–5) and Compulsions (items 6–10) model, as this model was established as the best fitting model for the English version of the Y-BOCS-II (Storch et al., 2010). This model had marginally acceptable fit, as two of the goodness-of-fit indices met previously established guidelines for adequate fit, as shown in Table 3. The Obsession and Compulsion factors were highly correlated ($r = 0.79$). Item 4 (distress associated with obsessions), item 9 (distress if compulsions prevented), and item 5 (interference from obsessions) had the strongest factor loadings, as displayed in Table 4.

Although the Obsessions and Compulsions two-factor model approached acceptable fit, we next examined the two-factor, Interference/Severity (items 1, 2, 3, 6, 7, and 8) and Resistance/Control (items 4, 5, 9, and 10) model to determine if this model fit the data better. This two-factor model fit the data poorly, as none of the goodness-of-fit indices met the threshold for an adequately fitting model (Table 3). The Interference/Severity and Resistance/Control factors were also highly correlated ($r = 0.80$). However, all factor loadings on the Resistance/Control factor were above 0.65 and were above 0.77 for the Severity/Interference factor, as shown in Table 4.

Finally, a one factor model was evaluated and fit the data poorly, as none of the goodness-of-fit statistics met the criteria for an adequate fitting model (Table 3), though all factor loadings were above 0.63 for this model (Table 4).

Exploratory factor analysis. Given that no individual model met criteria for acceptable fit overall, we conducted an exploratory factor

Table 2
Individual Spanish-Y-BOCS-II item summaries.

Spanish-Y-BOCS-II	M	SD	Endorsement Frequency					
			0	1	2	3	4	5
1. Time on obsessions	2.18	1.13	60	475	641	411	147	69
2. Obsession-free interval	2.05	1.16	125	508	557	412	167	36
3. Control over obsessions	2.20	1.14	86	405	689	375	189	60
4. Distress associated with obsessions	2.15	1.04	69	391	766	402	130	45
5. Interference from obsessions	1.73	1.09	214	577	619	296	67	30
6. Time on compulsions	1.88	1.04	99	610	654	326	82	33
7. Resistance to compulsions	1.98	1.37	257	483	486	292	198	88
8. Control over compulsions	2.21	1.21	121	388	634	372	222	66
9. Distress if compulsions prevented	2.25	1.25	105	430	575	399	191	102
10. Interference from compulsions	1.62	1.10	275	600	571	262	75	19

Note. Spanish-Y-BOCS-II = Spanish Yale-Brown Obsessive-Compulsive Scale – Second Edition.

Table 3
Fit indices for the Spanish-Y-BOCS-II across confirmatory factor models.

CFA Model	χ^2	df	p	RMSEA	CFI	TLI	SRMR
1	1154.43	34	<0.001	.14	.90	.86	.05
2	1193.03	34	<0.001	.14	.89	.86	.05
3	1293.75	35	<0.001	.14	.88	.85	.05

Note. Spanish-Y-BOCS-II = Spanish Yale-Brown Obsessive-Compulsive Scale – Second Edition; Model 1 = 2-factor Obsessions (items 1–5) and Compulsions (items 6–10); Model 2 = 2-factor Interference/Severity (items 1, 2, 3, 6, 7, and 8) and Resistance/Control (items 4, 5, 9, and 10); Model 3 = 1-factor model; RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean square residual.

Table 4
Factor loadings for the Spanish-Y-BOCS-II across confirmatory and exploratory factor models.

Spanish-Y-BOCS-II	CFA 1		CFA 2		CFA 3	EFA
	Obs	Comp	Res/Cont	Int/Sev	OCD	OCD
1. Time on obsessions	.76		.75		.74	.74
2. Obsession-free interval	.67		.66		.65	.65
3. Control over obsessions	.76		.76		.75	.75
4. Distress associated with obsessions	.81			.79	.79	.78
5. Interference from obsessions	.78			.81	.77	.77
6. Time on compulsion		.76	.75		.75	.75
7. Resistance to compulsions		.67	.65		.63	.63
8. Control over compulsions		.76	.75		.73	.74
9. Distress if compulsions prevented		.79		.75	.76	.76
10. Interference from compulsion		.74		.78	.75	.74

Note. Spanish-Y-BOCS-II = Spanish Yale-Brown Obsessive-Compulsive Scale – Second Edition; CFA = Confirmatory Factor Analysis; CFA 1 = 2-factor Obsessions (items 1–5) and Compulsions (items 6–10); CFA 2 = 2-factor Interference/Severity (items 1, 2, 3, 6, 7, and 8) and Resistance/Control (items 4, 5, 9, and 10); CFA 3 = 1-factor OCD model; EFA (Exploratory Factor Analysis) = 1-factor OCD model.

analysis. Principal axis factoring with a promax rotation yielded a one factor model with eigenvalue greater than one (eigenvalue=5.82). The scree plot also supported this one-factor solution, which accounted for 58.22 % of the variance in the Spanish-Y-BOCS-II. This one-factor model is consistent with the Spanish-Y-BOCS-II total score, which is typically interpreted in clinical settings to determine OCD symptom severity. All factor loadings were above 0.63, as shown in Table 4. Therefore, although the confirmatory factor analyses indicated that the Obsessions

Table 5
Psychometric properties of the Y-BOCS-II and Spanish-Y-BOCS-II.

	English (Storch et al., 2010)	English (Wu et al., 2016)	Spanish (Current data)		
Internal Consistency					
Symptom Checklist	KR20=0.91	–	KR20=0.92		
Total Severity	$\alpha=0.89$	$\alpha=0.86$	$\alpha=0.92$		
Obsession Severity	$\alpha=0.86$	$\alpha=0.83$	$\alpha=0.87$		
Compulsion Severity	$\alpha=0.84$	$\alpha=0.75$	$\alpha=0.86$		
Inter-Rater Reliability	ICC=0.85	ICC=0.99	ICC=0.98		
CFA Fit Indices	Model 1	Model 2	Model 1	Model 2	Model 3
χ^2	115.25	157.76	–	1154.43	1193.03
p	<0.001	<0.001	–	<0.001	<0.001
CFI	.84	.78	–	.90	.89
RMSEA	.14	.17	–	.14	.14

Note: Y-BOCS-II = Yale-Brown Obsessive-Compulsive Scale – Second Edition; KR20: Kuder-Richardson-20; ICC: intraclass correlations; Model 1: 2-factor Obsessions and Compulsions; Model 2 = 2-factor Interference/Severity and Resistance/Control; Model 3 = 1-factor model; CFA: confirmatory factor analysis; CFI: comparative fit index; RMSEA: root mean square error of approximation.

and Compulsions two-factor model fit the data best, the exploratory factor analysis indicated that the one-factor model was most adequate for these data. Table 5 presents psychometric data for both the Y-BOCS-II (Storch et al., 2010; Wu et al., 2016) and Spanish-Y-BOCS-II.

2.3. Construct validity

Correlations between measures indicate that the convergent validity between the Spanish-Y-BOCS-II and the CGI-S ($r = 0.60$) and the OCI-4 ($r = 0.50$) was strong (Cohen, 1988). The Spanish-Y-BOCS-II was moderately correlated with depressive ($r = 0.48$) and anxiety ($r = 0.48$) symptoms. As expected, the Spanish-Y-BOCS-II and the Spanish version of the Y-BOCS were strongly correlated ($r = 0.99$).

3. Discussion

This is the first study to examine the psychometric properties of the Spanish-Y-BOCS-II. Overall, findings replicate past work supporting the Y-BOCS-II psychometric properties across language versions. Internal consistency for the Severity Scale was high, as was inter-rater reliability. Comparable to Storch et al. (2010), a meaningful number of individuals scored above 40, and the increased range of the Y-BOCS-II (range of item endorsement from 0 to 5, versus 0 to 4) was regularly utilized.

The Spanish-Y-BOCS-II demonstrated satisfactory construct validity. Consistent with previous studies (Alić et al., 2022; Castro-Rodriguez et al., 2018; Melli et al., 2015; Storch et al., 2010; Wu et al., 2016; Zhang et al., 2019), the Y-BOCS-II Severity Scale was strongly related to clinician-rated and self-reported obsessive-compulsive symptom severity. Moderate correlations were observed with depressive and anxiety symptoms which were similar in magnitude to those found with self-reported obsessive-compulsive symptoms. This has also been observed in prior psychometric studies of the Y-BOCS-II and Y-BOCS (Castro-Rodriguez et al., 2018; McKay et al., 1995; Melli et al., 2015; Storch et al., 2007; Wu et al., 2016; Zhang et al., 2019) and other OCD measures (Abramowitz and Deacon, 2006; Storch et al., 2007) likely reflecting high rates of comorbid anxiety and depressive disorders in individuals with OCD (Crino and Andrews, 1996; Pinto et al., 2006). The OCI-4 is also not a measure of obsessive-compulsive symptom severity but rather reflects frequency of symptoms and associated distress.

Regarding dimensionality, confirmatory factor analysis replicated prior work (Castro-Rodriguez et al., 2018; Storch et al., 2010; Zhang et al., 2019), generally supporting a two-factor structure comprised of the Obsession and Compulsion Severity Subscales. Previous evaluations of the Y-BOCS-II in other languages have supported a two-factor (i.e., obsession and compulsion) model (Castro-Rodriguez et al., 2018; Zhang et al., 2019) with marginally acceptable fit, which aligns with the current model. Cultural factors could influence the ways in which participants interpret and report symptoms, which may impact factor structure (Schwartz et al., 2014). For example, cultural frame switching occurs

when specific cultural cues (e.g., language, behaviors) impact individual's responses. Additionally, stereotype threat can shift participant responding in ways that confirm stereotypes about their cultural group. We speculate that this could account, in part, for some of the differences found in factor structure, including between the CFA and the EFA for the Spanish-Y-BOCS-II. That is, while the two-factor model (obsessions and compulsions) demonstrated acceptable fit, exploratory factor analysis also supported a one-factor model comprising a Total Score. This may reflect the strong functional relationship between obsessions and compulsions and that these symptom classes are not mutually exclusive (Abramowitz and Jacoby, 2015). That is, compulsions are usually completed while the person experiences obsessions, thus inherent scoring overlap which has been found by others and is explained by cognitive-behavioral theories of OCD (Deacon and Abramowitz, 2005; McKay et al., 2004; Storch et al., 2010). Additionally, based on neurobiological evidence, obsessions and compulsions share many neurobiological pathways, particularly related to the cortico-striato-thalamo-cortical (CSTC) circuit, which suggests that these constructs may be heavily interrelated, rather than distinct factors (Goodman et al., 2021).

There are several study limitations. First, the treatment sensitivity and test-retest reliability of the Spanish-Y-BOCS-II were not assessed, which we highlight as an area for future research. Second, depressive and anxiety symptoms were assessed using self-reported measures; future studies should include clinician-rated measures to assess divergent validity. Third, the Spanish-Y-BOCS-II was revised in collaboration and with feedback from colleagues from Mexico, Central and South America; this measure may require additional revisions to be appropriate for Spanish-speaking populations in Europe. Within these limitations, this is the first study evaluating the Spanish-Y-BOCS-II in Latinos/Hispanics with OCD. These data fill a notable gap and are a step toward decreasing the existing OCD assessment disparity by supporting the Spanish-Y-BOCS-II psychometric properties. Given the strong psychometric properties of the Spanish-Y-BOCS-II, dissemination of this measure and evidence-based training protocols are recommended for settings that see Spanish-speaking individuals with OCD. Further efforts are necessary to translate and psychometrically validate the Y-BOCS-II in other languages.

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CRedit authorship contribution statement

Eric A. Storch: Writing – original draft, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization. **Jessica S.C. Cheng:** . **Miranda Higham:** Writing – original draft, Formal analysis, Data curation. **Josselyn S. Muñoz:** Writing – review & editing, Project administration, Investigation, Data curation. **Vanessa Zavala Cruz:** Writing – review & editing, Project administration, Investigation, Data curation. **Dayan Berrones:** Writing – review & editing, Project administration, Investigation, Data curation. **Diana P. Obando:** Writing – review & editing, Supervision, Project administration, Investigation, Data curation. **Jacey L. Anderberg:** Writing – review & editing, Project administration, Investigation, Data curation. **Renee M. Frederick:** Writing – review & editing, Project administration, Investigation, Data curation. **Vissente Tapia-Cuevas:** Writing – review & editing, Project administration, Investigation, Data curation. **Macarena Churruca Muñoz:** Writing – review & editing, Project administration, Investigation, Data curation. **Constanza Uribe Villar:** Writing – review & editing, Project administration, Investigation, Data curation. **Pablo R. Moya:** Writing – review & editing, Supervision, Project administration, Investigation, Data curation. **Marcos E. Ochoa-Panaifo:** Writing – review & editing, Supervision, Project administration, Investigation, Data curation. **Mayra C. Martinez Mallen:** Writing – review & editing, Supervision, Project administration, Investigation, Data curation. **Andrew D. Wiese:** Writing – review & editing, Supervision, Project administration, Investigation. **Caitlin M. Pinciotti:** Writing – review & editing. **Melisa N. Sagarnaga:** Writing – review & editing, Project administration, Investigation, Data curation. **Joseph F. McGuire:** Writing – review & editing, Project administration, Investigation, Data curation. **Ogechi C. Onyeka:** Writing – review & editing, Supervision, Project administration, Investigation. **María B. Moyano:** Writing – review & editing, Supervision, Project administration, Investigation, Data curation. **Wayne K. Goodman:** Writing – review & editing, Supervision, Project administration, Methodology, Conceptualization. **James J. Crowley:** Writing – review & editing, Project administration, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization.

Declaration of competing interest

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