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The Leyton Obsessional Inventory – Child Version Survey Form Does Not Demonstrate Adequate Psychometric Properties in American Youth with Pediatric Obsessive-Compulsive Disorder

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Abstract

The psychometric properties of the Leyton Obsessional Inventory–Child Version Survey Form (LOI-CV Survey Form) and the Short Leyton Obsessional Inventory–Child Version Survey Form (Short LOI-CV Survey Form) were examined in a clinical sample of 50 children and adolescents with obsessive-compulsive disorder (OCD). The internal consistency of the LOI-CV and Short LOI-CV Survey Forms were acceptable and poor, respectively ($\alpha = .79$ and $.65$). The LOI-CV Survey Form was significantly and moderately correlated with child-rated OCD-related impairment, but was not significantly correlated with any other measures of OCD symptom frequency or severity, OCD-related impairment, global symptom severity, child reports of anxiety and depressive symptoms, and parent reports of children's obsessive-compulsive, internalizing, and externalizing symptoms. Modest support for the cognitive-behavioral treatment sensitivity of the LOI-CV Survey Form (Cohen's $d = 0.98$) but not the Short LOI-CV Survey Form (Cohen's $d = 0.09$) was demonstrated. Diagnostic sensitivity was poor for the LOI-CV Survey Form at both pre- (0.14) and post-treatment (0.06). Overall, these results suggest that the psychometric properties of the LOI-CV and Short LOI-CV Survey Forms are not adequate for use as a screening instrument or in assessing symptom severity in pediatric OCD.

Keywords

Obsessive-compulsive disorder; Leyton Obsessional Inventory–Child Version Survey Form; Children; Assessment; Reliability; Treatment; Validity

Based on the Leyton Obsessional Inventory—Child Version card sorting task (Berg, Rapoport, & Flament, 1986), the Leyton Obsessional Inventory—Child Version Survey Form (LOI-CV Survey Form; Berg, Whitaker, Davies, Flament et al., 1988) was the first published child-report measure for assessing obsessive-compulsive symptoms. The LOI-CV Survey Form includes 20 items believed to be representative of frequently endorsed

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obsessive-compulsive symptoms. Items are initially rated for their presence or absence; for those items endorsed as present, a follow-up question assesses interference caused by the symptom on a 4-point scale with higher ratings representative of greater symptom severity.

The psychometric properties of the LOI-CV Survey Form have been the topic of study in a number of reports. The LOI-CV Survey Form demonstrated good internal consistency ($\alpha = .81$) in a large sample of non-clinical adolescents (Berg et al., 1988; Flament, Whitaker, Rapoport, Davies et al., 1988) but only poor to good two-week test-retest reliability in non-clinical youth (King, Inglis, Jenkins, Myerson, & Ollendick, 1995). More specifically, test-retest reliability for questions assessing the presence of obsessive-compulsive symptoms was good for 14–16 ($r = .83$) and 11–13 year-olds ($r = .75$) but poor for 8–10 year-olds ($r = .51$). Test-retest reliability for interference items was good for 11–13 year-olds ($r = .81$), adequate for 8–10 year-olds ($r = .65$) and poor for 14–16 year-olds ($r = .57$). Factorial validity was initially supported through a coherent structure consisting of the following factors: 1) general obsessive, 2) dirt-contamination, 3) numbers-luck, and 4) school. However, a later factor analytic study in a non-clinical sample yielded a three-factor solution that was named the Short Leyton Obsessional Inventory—Child Version Survey Form (Short LOI-CV Survey Form). The Short LOI-CV Survey Form included 11 of the 20 original items with the following factors: 1) compulsions, 2) obsessions/incompleteness, and 3) concern with cleanliness (Bamber, Tamplin, Park, Kyte, & Goodyer, 2002). Adequate sensitivity and specificity for the LOI-CV Survey Form have been reported using a cutoff of 25 (75% and 84%, respectively; Flament et al., 1988); however, others have shown poor specificity (Stewart, Ceranoglu, O’Hanley, & Geller, 2005; Wolff & Wolff, 1991). For example, the LOI-CV Survey Form showed poor sensitivity (36% and 28%) at cutoff scores of 20 and 25, respectively (Stewart et al., 2005). In the one study examining a large clinical sample of youth with OCD, the LOI-CV Survey Form did not correlate significantly with obsessive-compulsive symptom severity or overall illness severity (Stewart et al., 2005). The treatment sensitivity of the LOI-CV Survey Form has not been supported (Geller, Biederman, Stewart, Mullin, Martin et al., 2003). In a meta-analysis of randomized, controlled medication trials in youth with obsessive-compulsive disorder (OCD), the LOI-CV Survey Form did not show sensitivity to overall change in pooled outcomes.

Despite being widely used in clinical and research practice (e.g., Geller et al., 2003), and translated into several languages (e.g., Roussos, Francis, Koumoula, Richardson, Kabakos et al., 2003), a critical evaluation of the extant literature using the English version of the LOI-CV Survey Form prevents definitive conclusions about its psychometric properties. There are several areas where limited psychometric information is most noticeable. First, with the exception of treatment studies and the report by Stewart et al. (2005), very few psychometric data in youth with a clinical diagnosis of OCD have been reported. For example, Bamber et al. (2002) included only 23 youth with OCD while the Berg et al. (1988), Flament et al. (1988), and King et al. (1995) studies used non-clinical samples. As well, the Short LOI-CV Survey Form was factorially derived from a non-clinical sample of 253 youth. Second, treatment sensitivity has not been supported in prior trials (see Geller et al., 2003), and virtually no data about the sensitivity of the LOI-CV Surveys¹ to cognitive-behavioral therapy, a gold standard intervention for pediatric OCD (Barrett, Farrell, Pina, Peris, & Piacentini, 2008), has been reported. Third, construct validity of the LOI-CV Surveys has not been adequately tested vis-à-vis established, psychometrically sound measures of obsessive-compulsive severity such as the Children’s Yale Brown Obsessive-Compulsive Scale (CY-BOCS; Scahill, Riddle, McSwiggin-Hardin, Ort, King et al., 1997) or more general measures of impairment such as the Clinical Global Impression of Severity Scale

¹For clarity, the term ‘LOI-CV Surveys’ will be used when referring to both the LOI-CV Survey Form and Short LOI-CV Survey Form.

(CGI-Severity; Guy, Clearly, Close, Conners, Covi, et al., 1976). As well, limited discriminant validity data have been reported on the LOI-CV Surveys such as the degree to which it correlates with non-OCD anxiety symptoms, depressive symptoms, and externalizing behaviors.

With these issues in mind, we ask four research questions with regard to youth with OCD: (1) What is the internal consistency of the LOI-CV and Short LOI-CV Surveys and their factor scores? (2) Do the LOI-CV and Short LOI-CV Surveys correlate with measures of obsessive-compulsive symptom severity, overall illness severity, OCD-related impairment, and anxiety, depressive, and behavioral symptomology? (3) What is the diagnostic sensitivity of the LOI-CV Survey Form at baseline (i.e., before starting cognitive-behavioral treatment) and the sensitivity and specificity of the LOI-CV Survey Form to detecting OCD diagnoses following cognitive-behavioral treatment? and (4) Are the LOI-CV and Short LOI-CV Surveys sensitive to cognitive-behavioral treatment changes?

Method

Participants

The sample consisted of 50 youth (38% female) aged 7–18 years ($M = 11.48$, $SD = 2.76$ years) and diagnosed with primary OCD. Diagnostic status was ascertained through a structured diagnostic interview and confirmed through an unstructured clinical interview with an experienced clinician. All children had moderate or greater symptom severity as assessed by a CY-BOCS score of ≥ 16 . Concomitant medication was not exclusionary (35 participants were taking a stable psychopharmacologic agent(s)). Participants on psychotropic medication were stable at their dose for at least 8 weeks. Exclusion criteria included diagnoses of any psychotic disorder, bipolar disorder, autism spectrum disorder, substance abuse/dependence within last six months, or current suicidality. Eighty-two percent of the sample was Caucasian ($n = 41$), 2% African American ($n = 1$), 4% Asian ($n = 2$), 4% Hispanic ($n = 2$), and 8% identified themselves as ‘other’ ($n = 4$).

Measures

The following measures were administered or completed: (1) The Anxiety Disorders Interview Schedule for DSM-IV–Parent Version (ADIS-IV-P; Silverman & Albano, 1996) is a psychometrically sound, clinician-administered diagnostic interview that assesses the presence of current Axis I disorders and provides differential diagnoses based on the DSM-IV-TR (American Psychiatric Association, 2000). The ADIS-IV-P has consistently demonstrated good reliability and validity properties (e.g., Silverman & Albano, 1996; Silverman, Saavedra & Pina, 2001; Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). (2) The CY-BOCS (Scahill et al., 1997) is a 10-item, clinician-administered, semi-structured measure that is considered the gold-standard instrument for assessing obsessive-compulsive symptom severity in youth. The CY-BOCS yields scores for obsessions, compulsions, and overall OCD severity. The CY-BOCS has demonstrated good inter-rater reliability, test-retest reliability, internal consistency, discriminant validity, and convergent validity (Scahill et al., 1997; Storch, Murphy, Geffken, Soto, Sajid et al., 2004). (3) The CGI-Severity (Guy et al., 1976) is a clinician-administered rating scale that measures global severity on single-item scores from a range of scores of 1 (“normal, not at all ill”) to 7 (“extremely ill”). (4) The LOI-CV (Flament et al., 1988) and Short LOI-CV Surveys (Bamber et al., 2002) are self-report measures of OCD symptom presence and severity. The respondent endorses the presence or absence of 20 symptoms plus an interference rating for each positively scored item. Consistent with Bamber et al. (2002), scoring used a 4-point measure of symptom interference. See above for a detailed description of the scales and associated psychometric properties. The established diagnostic cutoff for OCD is a LOI-CV

Survey Form score of 25 (Flament et al., 1988); no cutoff score has been proposed for the Short LOI-CV. (5) The Child Behavior Checklist (CBCL; Achenbach, 1994) is a parent-rated questionnaire that assesses internalizing and externalizing problems exhibited by children over the last six months. The CBCL has demonstrated good reliability, internal consistency and discriminant validity. (6) The Child Depression Inventory (CDI; Kovacs, 1985) is a 27-item self-report measure that assesses the presence and severity of current depressive symptoms. The CDI has demonstrated good psychometric properties (Kovacs, 1985). (7) The Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, & Stallings, 1997) is a psychometrically sound self-report anxiety measure that provides a measure of overall anxiety severity as well as subscales that measure physical symptoms, harm avoidance, social anxiety and separation and panic symptoms. (8) The Child Obsessive-Compulsive Impact Scale-Child and Parent Versions (COIS-C/P; Piacentini, Bergman, Keller, & McCracken, 2003) are 56-item parent or child report measures, which assess OCD-specific impairment in school, social and family domains on a 4-point Likert scale. The COIS-C/P have demonstrated sound psychometric properties, including excellent internal consistency and construct validity (Piacentini et al., 2003).

Procedures

All research procedures were reviewed and approved by the local institutional review board. Written consent and assent was obtained from each participant prior to their involvement in the respective studies. Psychiatric diagnoses were obtained through an evaluation with a clinician and confirmed through the ADIS-IV-P. Participants completed study measures at baseline (i.e., before starting treatment); 45 participants also completed study measures after receiving cognitive-behavioral therapy. Independent evaluators blinded to the treatment condition of the participants administered the clinician-rated study measures (e.g., CGI-Severity, CY-BOCS) at each assessment time point.

All participants received CBT through participation in one of two treatment outcome studies (Storch et al., 2010; unpublished data). One study examined the efficacy of CBT delivered via web-camera relative to a waitlist condition (W-CBT; Storch et al., unpublished data). The second study investigated the effects of D-cycloserine augmentation on CBT outcome (Storch et al., 2010). Participants received 10 or 14 weekly CBT sessions (depending on trial) based on the Pediatric OCD Treatment Study protocol (POTS, 2004). Early sessions incorporated psychoeducation, cognitive therapy, and development of child's fear hierarchy. Sessions 4 and after focused on exposure and responses prevention exercises to the individual child's obsessional triggers. Please see Storch et al. (2010) and POTS (2004) for a comprehensive discussion of treatment. There were no differences across studies in terms of sociodemographic variables or scores on the LOI-CV Surveys; however, participants in Storch et al. (2010) exhibited more severe obsessive-compulsive symptoms on the CY-BOCS than those in Storch et al. (unpublished data).

Data Analyses

Cronbach's alpha was used to assess the internal consistency of the LOI-CV Surveys and their factor scores. Consistent with Nunnally and Bernstein (1994), alphas below .70 were defined as "poor", alphas of .70-.79 were defined as "acceptable", and alphas of .80 or above were defined as "good", Pearson product-moment correlations were computed to examine the relationship between the LOI-CV and Short LOI-CV Surveys and measures of OCD symptom severity, OCD-related impairment, global symptom severity, self-reported anxiety and depressive symptoms, and parent-reported obsessive-compulsive, internalizing, and externalizing symptoms. Correlations .50 and above were defined as "large", correlations of .30-.49 were defined as "medium", and correlations of .10-.29 were defined as "small" (Cohen, 1988). Two dependent sample *t*-tests were used to examine the treatment

sensitivity of the LOI-CV and Short LOI-CV Surveys. Cohen's d (1988) was used to examine the magnitude of treatment effects. Diagnostic sensitivity of the LOI-CV Survey Form was calculated to measure the proportion of youth with OCD who were correctly classified as such at pre-treatment. This probability was calculated by number of true positives/(number of true positives + number of true negatives). Diagnostic specificity of the LOI-CV Survey Form was calculated to measure the proportion of children without OCD at post-treatment who were correctly identified as not having OCD. This was calculated by number of true negatives/(number of true negatives + number of false negatives). Diagnostic remission (i.e., presence or absence of OCD diagnosis) was determined through the ADIS-IV-P with an associated Clinician Severity Rating less than 4.

Results

Internal Consistency

Cronbach's alpha was acceptable for the LOI-CV Survey Form ($\alpha = .79$), but poor for the Short LOI-CV Survey Form total score ($\alpha = .65$; Nunnally & Bernstein, 1994). The four LOI-CV Survey Form factor scores demonstrated poor internal consistency: general obsessive ($\alpha = .53$), dirt-contamination ($\alpha = .49$), numbers-luck ($\alpha = .66$), and school ($\alpha = .56$). The three Short LOI-CV Survey Form factor scores demonstrated poor internal consistency: compulsions ($\alpha = .57$), obsessions/incompleteness ($\alpha = .64$), and concern with cleanliness ($\alpha = .33$).

Correlations among Study Measures

As seen in Table 1, the LOI-CV and the Short LOI-CV Surveys were both moderately and significantly correlated with the child-rated COIS-C. However, the LOI-CV and Short LOI-CV Surveys were not significantly or meaningfully correlated with obsessive-compulsive symptom severity (CY-BOCS), overall illness severity (and CGI-Severity), parent-rated OCD-related impairment (COIS-P), and parent-rated obsessive-compulsive symptoms (CBCL-OCS). The LOI-CV and Short LOI-CV Surveys did not correlate significantly with child-rated anxiety and depressive symptoms, or parent-reported internalizing and externalizing symptoms.

Treatment Sensitivity

Post-treatment scores on the LOI-CV Survey Form decreased significantly relative to baseline ($M_{\text{Pre-treatment}} = 17.36 \pm 9.17$; $M_{\text{Post-treatment}} = 8.43 \pm 7.54$, $t(43) = 6.48$, $p < .001$). Although the LOI-CV Survey Form demonstrated treatment sensitivity, the effect size (Cohen's $d = 0.98$) was substantially lower than the effect size for the pre- to post-treatment scores on the CY-BOCS ($M_{\text{Pre-treatment}} = 24.67 \pm 4.08$; $M_{\text{Post-treatment}} = 10.07 \pm 8.25$, $t(44) = 11.56$, $p < .001$; Cohen's $d = 1.72$). No significant decrease were found for the Short LOI-CV Survey Form ($M_{\text{Pre-treatment}} = 9.26 \pm 4.73$; $M_{\text{Post-treatment}} = 8.58 \pm 7.56$, $t(42) = .56$, $p = .58$; Cohen's $d = 0.09$).

Diagnostic Sensitivity and Specificity

At baseline, the diagnostic sensitivity for the LOI-CV Survey Form was 0.14 (95% confidence interval [CI] = .06-.27). Only 14% of youth had LOI-CV Survey Form scores meeting or exceeding the diagnostic cutoff. At post-treatment, the LOI-CV Survey Form diagnostic sensitivity was poor (.06; 95% CI = .003-.30), with only 6% of youth having LOI-CV Survey Form scores meeting or exceeding the diagnostic cutoff (among youth still meeting OCD diagnostic criteria). Post-treatment diagnostic specificity was 1.0 (95% CI = .85-1.0); no youth who failed to meet OCD diagnostic criteria at post-treatment had LOI-CV Survey Form scores meeting or exceeding the cutoff score.

Discussion

The LOI-CV and Short LOI-CV Surveys have been widely used in research and clinical settings although few psychometric data exist in pediatric OCD samples and some of the extant data suggests questionable psychometric properties (e.g., Geller et al., 2003; King et al., 1995; Stewart et al., 2005). Results of this psychometric analysis of the LOI-CV and Short LOI-CV Surveys in American youth suggest that these measures may not be ideal measures of obsessive-compulsive symptom severity or improvement, or appropriate for use as screening instruments. The internal consistency was acceptable for the LOI-CV Survey Form, poor for the Short LOI-CV Survey Form, and poor for the factorially derived subscales of the LOI-CV Surveys. Given relatively low levels of symptom endorsement on the LOI-CV Survey Form, the acceptable reliability may be an artifact of the number of items in the scale (i.e., more items within a scale tends to inflate internal consistency) and truncated range of participant responses.

Validity properties were also concerning. First, although the LOI-CV Survey Form demonstrated reasonable treatment sensitivity, associated effect sizes were significantly smaller than treatment effects measured by the CY-BOCS. Thus, it is not clear if the information ascertained from the LOI-CV and Short LOI-CV Surveys (the latter did not show treatment sensitivity) would provide incremental information above and beyond the CY-BOCS in assessing symptom change. Second, the lack of association between the LOI-CV and Short LOI-CV Surveys and the gold standard clinician-rated measure of OCD symptom severity (Lewin & Piacentini, 2010), the CY-BOCS interview, is problematic. Although the present study was not able to compare the LOI-CV Survey Form with other obsessive-compulsive symptom self-report scales, data from extant studies have demonstrated higher associations between other self-report inventories and the CY-BOCS (see Table 2). Compared to other self-report ratings of obsessive-compulsive severity and symptom presence, the LOI-CV Surveys did not demonstrate associations with the CY-BOCS of equivalent magnitudes (Foa, Coles, Huppert, Pasupuleti, Franklin et al., 2010; Storch, Khanna, Merlo, Loew, Franklin et al., 2009; Storch, Murphy, Adkins, Lewin, Geffken et al., 2006; Uher, Heyman, Turner, & Shafran, 2008). On balance, low correlations may be expected given that the LOI-CV and Short LOI-CV Surveys primarily assess symptom presence while the CY-BOCS is a measure of OCD symptom severity. And, it is relevant to note that using the total score on broad-band measures of obsession and compulsion presence/interference may have limitations when the patient presents with only one predominant symptom type. Finally, use of the previously proposed LOI-CV Survey Form cutoff score for establishing OCD diagnosis was not supported in this research. Diagnostic sensitivity was extremely poor both at pre-treatment and post-treatment suggesting limited ability to correctly classify caseness. Although specificity was strong at post-treatment, this finding is due the overwhelming majority of youth not exceeding the LOI-CV Survey Form cutoff. Even with high specificity, the poor sensitivity suggests limited diagnostic utility of this measure relative to expert clinician diagnosis and structured diagnostic interviews. And, because the LOI-CV Survey Form was used in early epidemiological studies (e.g., Berg et al., 1988; Flament et al., 1988), prevalence rates from those studies may actually underestimate the actual incidence of OCD in the community (Stewart et al., 2005).

Several limitations should be considered while interpreting study results. First, findings are based on a sample of fifty youth with OCD. While this is a relatively modest sample for a psychometric study, fifty participants is not an insignificant cohort of youth with OCD especially when considering that treatment sensitivity was examined. Moreover, with the exception of Stewart et al. (2005), other examinations of the LOI-CV Surveys are based on clinical samples of similar or smaller size. Second, concurrent validity with other symptom

checklists or self-report measures was not possible for this study. Third, diagnostic specificity could not be calculated at baseline because all participants were diagnosed with OCD. A better evaluation of the LOI-CV Survey Form's diagnostic sensitivity and specificity would require a cohort including youth without an OCD diagnosis. Fourth, sample size did not permit quantitative verification of the factor structure. Finally, although treatment sensitivity data are presented, test-retest and alternate form reliabilities are not available.

In spite of these limitations, the present research implies that the LOI-CV and Short LOI-CV Surveys are not the ideal self-report measures for use in clinical research. Compared to other self-report measures (see Table 2), the LOI-CV and Short LOI-CV Surveys exhibited notably lower correlations with obsessive-compulsive symptom severity indicators. Further, reliability of the LOI-CV Surveys and its factor scores was similar or worse than other symptom self-report measures, such as the Obsessive Compulsive Inventory – Child Version (Foa et al., 2010) or the Children's Florida Obsessive Compulsive Inventory (Storch et al., 2009). Accordingly, the authors recommend that other self-report obsessive-compulsive symptom assays be exhausted prior to employing the LOI-CV and Short LOI-CV Surveys for clinical or research purposes.

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Table 1

Pearson correlation coefficients for study measures

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) LOI-CV	---												
(2) Short LOI-CV	.903**	---											
(3) CY-BOCS-Total	.225	.176	---										
(4) CY-BOCS-Obsession	.176	.121	.871**	---									
(5) CY-BOCS-Compulsions	.208	.181	.823**	.437**	---								
(6) CGI-Severity	.166	.108	.858**	.715**	.743**	---							
(7) MASC	.119	.121	.211	.165	.193	.107	---						
(8) CDI	.224	.126	.526**	.496**	.389**	.430**	.264	---					
(9) CBCL-Internalizing	.038	.089	.255	.218	.213	.212	.479**	.536**	---				
(10) CBCL-Externalizing	-.036	-.008	.262	.234	.209	.266	.088	.211	.532**	---			
(11) CBCL-OCS	.138	.223	-.087	-.092	-.053	-.112	.202	.281	.526**	.103	---		
(12) COIS-P	.071	.016	.449**	.357*	.396**	.433**	-.074	.399**	.373**	.279	.105	---	
(13) COIS-C	.447**	.454**	.444**	.312*	.452**	.403**	.300*	.492**	.291*	-.029	.197	.395**	---
Mean	17.36	9.26	24.48	11.66	12.82	3.54	35.90	2.73	13.62	9.10	7.65	37.52	31.11
Standard Deviation	9.17	4.73	4.03	2.54	2.20	1.03	12.45	3.12	7.68	7.44	2.98	20.22	21.98
Range	0-45	0-24	17-34	7-17	9-20	2-5	8-63	0-13	2-36	0-27	3-15	5-97	1-90

Note. LOI-CV = Leyton Obsessional Inventory-Child Version Survey Form; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CGI-S = Clinical Global Impressions - Severity; MASC = Multidimensional Anxiety Scale for Children; CDI = Children's Depression Inventory; CBCL = Child Behavior Checklist; COIS-P = Child Obsessive-Compulsive Impact Scale - Parent Version; COIS-C = Child Obsessive-Compulsive Impact Scale - Child Version

* $p < .05$,

** $p < .01$

Table 2

Associations between OCD child report scales and the CY-BOCS

Scale	Type	n	r	Reliability	Study Reference
LOI-CV	Symptom	50	.23	= .79	Current Study
Short LOI-CV	Symptom	50	.18	= .65	Current Study
OCI-CV	Symptom	109	.31	= 0.85	(Foa et al., 2010)
C-FOCI Checklist	Symptom	82	.32	KR-20 = 0.76	(Storch et al., 2009)
C-FOCI Severity	Severity	82	.50	= 0.79	(Storch et al., 2009)
CY-BOCS-Child Report	Severity	53	.58	= 0.87	(Storch et al., 2006)
CHOCI-R-Child	Severity	285	.55	= 0.84 (total symptoms) = 0.86 (total impairment)	(Uher et al., 2008)

KR-20 = Kuder Richardson-20

Survey Form HOCI-R = Children's Obsessional Compulsive Inventory; C-FOCI = Child Florida Obsessive Compulsive Inventory; OCI-CV = Obsessive Compulsive Inventory-Child Version; *n* = number of subjects; *r* = Pearson correlation coefficient.