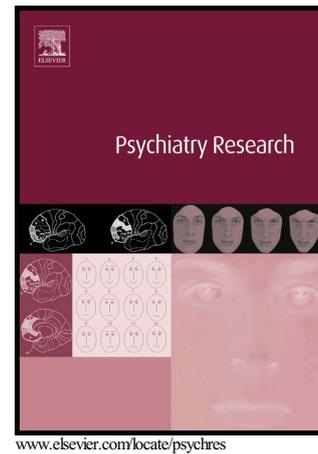# Author's Accepted Manuscript

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Overvalued Ideation in Adolescents with Obsessive-Compulsive Disorder

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Abstract

In Obsessive Compulsive Disorder (OCD), overvalued ideas (OVI) are considered poor

prognostic indicators in adults. To date, OVI has not been studied in an adolescent

population with OCD, nor has it been examined in relation to obsessive-compulsive

beliefs. To investigate the relationship between OVI and specific cognitions, fifty-five

adolescents with OCD (35 male; 20 female; age range 13–17 years; M=14.05 years,

SD=1.75 years) participated. It was predicted that OVI would be associated with

symptom severity and would moderate obsessive-compulsive beliefs and functional

disability. Results showed that OVI was associated with symptom severity, but did not

moderate the relationship with any OC beliefs or functional domains. To evaluate the

role of OVI in treatment outcome, thirteen adolescents completed a cognitive-behavioral

treatment program. Severity of their OCD symptoms, OVI, degree of functional

impairment and quality of life were assessed. It was expected that all variables would change in response to treatment. Further, it was expected that OVI would mediate treatment outcome for all measures of obsessive-compulsive symptom and belief assessments. Results indicated that there was clinically significant change in symptom severity and functional disability, as well as beliefs regarding responsibility/overestimation of threat. Treatment, assessment, and methodological recommendations for this population are offered.

Keywords*: obsessive-compulsive beliefs

1. Introduction

Obsessive Compulsive Disorder (OCD) is principally characterized by obsessions, negative feelings, and compulsions. Obsessions are thoughts, images, or impulses that are repetitive, intrusive, and difficult to suppress. The five core features of obsessions are discussed in greater detail in Clark (2004) and are based on the criteria for diagnosing OCD in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013). A compulsion, ritual, or neutralizing strategy has four main characteristics: the response is intentional, repetitive, excessive, and the person feels an urge to perform it. The prevalence of OCD has been well studied in population-wide surveys across the globe. These studies show that OCD occurs in 1-3% of adults (Fireman et al., 2001; Weissman et al., 1994) and

1.9–4% in children (Douglass et al., 1995; Karno et al.,1988; Zohar, 1999). OCD is considered responsive to treatment, with two approaches shown to be efficacious: cognitive-behavioral therapy (CBT) with exposure and response prevention (ERP) and psychopharmacologic interventions, including selective serotonin reuptake inhibitors (SSRIs) (Franklin et al., 2015; Pediatric OCD Treatment Study (POTS) Team, 2004).

As OCD continues to be studied by researchers, cognitive-behavioral etiology models are becoming promising approaches to conceptualizing OCD (Clark, 2004; Frost and Steketee, 2002; Salkovskis, 1999). These models propose that OCD develops from a certain set of dysfunctional beliefs, leading the person to misinterpret or overestimate the significance of their unwanted and intrusive thoughts. When an individual attributes unwarranted significance to such thoughts, mental events can become transformed into obsessions and lead to compulsions.

A diagnosis of OCD presumes that, at some point, the patient has recognized the obsessions as excessive or unreasonable. However, some OCD patients believe their obsessions are logical and are unable to perceive their obsessions as being irrational. Thus, their obsessions are said to be overvalued. An overvalued idea (OVI) is "an unreasonable and sustained belief that is maintained with less than delusional intensity," (5th ed.; DSM-V; American Psychiatric Association, 2013). A number of authors (Hollander, 1993; Kozak and Foa, 1994; Neziroglu et al., 1999) consider the strength of a belief as one of the prominent features characterizing overvalued ideas. Overvalued ideas are irrational, unreasonable beliefs that are held with strong conviction, and the person lacks insight or the ability to attribute the belief to the disorder (i.e. OCD; Neziroglu and Stevens, 2002). Conceptually, overvalued ideas

interfere with disconfirmatory learning and habituation processes in ERP (Kozak and Foa, 1994).

Some scales have been created for the measurement of overvalued ideas. Eisen et al. (1998) developed the *Brown Assessment of Beliefs Scale* (BABS), which measures different dimensions of insight in a variety of disorders including schizophrenia. Foa et al. (1995) developed the "Fixity of Beliefs" questionnaire, which evaluates the strength to which OCD patients recognize that their obsessions and compulsions are unreasonable or irrational. Lastly, Neziroglu et al. (1999) developed the *Overvalued Ideas Scale* (OVIS), assessing the main beliefs associated with OCD. It measures the following components of an overvalued belief: strength, reasonableness, accuracy, perception of others' views, acknowledgement of differing views, general fixity of belief, and insight. In this case, the concept of belief is related to the degree a concept is held as accurate, as opposed to beliefs in the cognitive model of OCD, whereby broad errors in thinking (i.e., inflated responsibility, intolerance of uncertainty) are considered functional in the etiology of the condition.

OVIs are considered poor prognostic indicators across much of the literature, suggesting that these patients are more resistant to treatment than those who do not have OVIs (Foa, 1979; Foa et al., 1999; Neziroglu et al., 2001; Neziroglu et al., 2004). OVIs, as measured by the OVIS, have been shown to predict treatment response to both fluvoxamine (Neziroglu et al., 2004) and behavioral therapy (Neziroglu et al., 2001). Further, Bellino et al. (2005) found that poor insight was associated with more compulsions, illness chronicity, and a positive family history of OCD. Recent work by Catapano et al. (2001) and Turksoy et al. (2002) indicated that lack of insight was

associated with less resistance to obsessions and compulsions which contributed to poorer treatment outcomes. Finally, Ravi Kishore et al. (2004) revealed that poor insight was associated with an earlier onset of symptoms, longer duration of illness, increased symptom severity, and higher comorbidity. Although OCD with poor insight has been examined in adult patients, few investigations into the presence of insight in adolescents with OCD have been conducted. The diagnosis of OCD in pediatric populations does not require awareness that the obsessions or compulsions are excessive or unreasonable.

Clinical lore suggests that insight is a significant prognostic sign in the treatment of adult OCD. However, to date there is limited data regarding how clinical characteristics and treatment outcome vary as a function of insight level in pediatric patients (Storch et al., 2008; Storch et al., 2013). The present study aims to better understand the presence of overvalued ideas in adolescents. Based on the limited studies of OCD within pediatric populations, poor outcome has been related to more severe obsessions, greater baseline academic impairment, and poor peer relationships (Borda et al., 2013). In light of the available research in adult samples examining overvalued ideas (used as a proxy for insight), it was expected that it would be associated with greater symptom severity and disability, and greater endorsement of obsessive-compulsive beliefs in a pediatric sample. As a result, it was anticipated that OVI would be associated with greater symptom severity, and that OVI would moderate the relationship with obsessive-compulsive beliefs and with functional assessments.

2. Method

2.1 Participants

The present study included 55 (35 male; 20 female) participants between the ages of 13–17 years (M=14.05 years, SD=1.75 years) who were being treated in Buenos Aires during 2010-2014. Inclusion criteria were (a) principal diagnosis of OCD derived from the Anxiety Disorders Interview Schedule for DSM-IV: Children's Version (ADIS-IV-C; Silverman and Albano, 1996); (b) Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS; Storch et al., 2004) clinical rating of moderate or more severe, and Child Sheehan Disability Scale (CSDS; Whiteside, 2009) of moderate to high functional impairment; and (c) ability to participate in the assessment process. Parents gave consent to participate in the study. All conducted interviews and measures were administered in Spanish. A subset of the sample completed a cognitive-behavioral treatment program (n=13, boys = 10, girls = 3) (see Treatment section below for details of the intervention protocol, tables 1 and 2 for sample descriptive information, and table 3 for baseline descriptive data).

Adolescents were excluded if they met any of the following criteria: (a) history and/or current diagnoses of psychosis, autism, bipolar disorder, or current suicidality, as measured by the ADIS-IV-P and determined through all available clinical and school information; (b) principal diagnosis other than OCD; or (c) a positive diagnosis in the caregiver of mental retardation, psychosis, or other psychiatric disorders or conditions that would limit his or her ability to understand questionnaires.

Participants met criteria for additional diagnoses as follows: separation anxiety (n=10), social anxiety disorder (n=3), specific phobia (n=7), agoraphobia without panic disorder (n=3), dysthymia (n = 37), major depressive disorder (n = 3), school refusal (n = 7), conduct disorder (n = 4), enuresis (n = 1), and oppositional defiant disorder (n = 2).

2.2 Materials

2.2.1. Anxiety disorders interview schedule for DSM-IV – child version (ADIS-CV)

The ADIS-CV (Silverman and Albano, 1996) is a semi-structured interview designed to diagnose various anxiety disorders as well as mood and externalizing disorders in children and adolescents based on DSM-IV criteria. Symptoms are judged as present or absent, and the total number of symptoms endorsed is used to determine whether or not the child or adolescent meets criteria for a disorder. Kappa coefficients (representing reliability of diagnoses) between 0.63 and 0.80 have been reported.

2.2.2. Children's Yale-Brown obsessive-compulsive scale severity ratings (C-YBOCS Severity Ratings)

The C-YBOCS Severity Ratings (Goodman et al., 1989) is a 10-item, clinician-rated, semi-structured interview that is designed to measure the severity of a patient's OCD. The C-YBOCS measures several correlates of both obsessions and compulsions: time spent on obsessions/compulsions, interference from obsessions/compulsions, distress associated with obsessions/compulsions, resistance against obsessions/compulsions, and degree of control over obsessions/compulsions. Each item is rated on a 0 to 4 scale, and total scores are calculated by summing all responses. Higher scores indicate more severe OCD, with several clinical ranges available: subclinical (0–7), mild (8–15), moderate (16–23), severe (24–31), and extreme (32–40). Internal consistency (alpha) coefficients ranging from 0.87 to 0.90 have been reported. The CY-BOCS has satisfactory reliability (α=0.90, test–retest r=0.79) and validity (Storch et al.,2004). The CY-BOCS correlates with self-reported

OCD symptoms (r=0.62; Scahill et al.,1997) and is sensitive to change with treatment (POTS, 2004;Storch et al.,2013).

2.2.3. Child Sheehan Disability Scale (CSDS)

The CSDS (Sheehan, 1986) is a brief self-report measure developed to assess the degree of functional impairment in three domains: work/school, social life/leisure activities, and family life/home responsibilities. Patients rate the magnitude of impairment by his or her symptoms in each domain using a 10-point analog scale. A score of 5 or greater on any of the three scales is indicative of significant functional impairment. In addition, the three items can be summed into a measure of global functional impairment that ranges from 0 (unimpaired) to 30 (impaired). Internal consistency reliability has been found to be high with an alpha coefficient of 0.89. The measure has been shown to have good convergent validity with measures of anxiety, and good discriminant validity with measures of depression, externalizing disorders, global psychopathology, and adaptive functioning, and is sensitive to treatment effects (Whiteside, 2009).

2.2.4. Obsessive Belief Questionnaire- Child Version (OBQ-44-CV)

The OBQ-44-CV (Coles et al., 2010; OCCWG, 2005) was developed to assess beliefs that predispose an individual to acquire obsessive-compulsive symptoms. The instrument includes 44 items, which require the participant to rate their level of agreement with each item on a scale of 1 to 7; 1 indicates "disagree very much" and 7 indicates "agree very much." The OBQ-44-CV consists of items representing dysfunctional beliefs scored in 6 domains identified by OCCWG: inflated personal responsibility, overestimation of threat, perfectionism, over-importance of thought, and

over-control of thoughts. Factor analyses indicate obsessive beliefs are organized in the

following lower-order factors: responsibility/threat estimation, perfectionism/certainty,

and control/importance of thoughts. Factors are moderately inter-correlated (r= 0.42 to

0.52). Internal consistency of each factor is 0.93, 0.89, and 0.95 respectively. The

Spanish version of the OBQ-44 CV was used in this study (Nogueira Arjona et al.,

2012).

2.2.5. Overvalued Ideas Scale (OVIS)

The OVIS (Neziroglu et al., 1999) is a 10-item clinician administered scale that

evaluates the extent of a patient's obsessions and associated compulsions on several

different continua. Reliability and validity data indicate a total internal consistency of

0.95 and a test-retest reliability of 0.93. Convergent validity has been established with

the Y-BOCS, and ranges from 0.44 to 0.83, while discriminant validity has been

obtained with measures of anxiety and depression using the Hamilton scales (0.47 and

0.53, respectively). The scale includes 1. how strong the obsessive belief is on a scale

from 1 (belief is very weak) to 10 (belief is very strong); 2. how reasonable the belief is

(1= totally unreasonable; 10= completely reasonable); 3. and 4. assess whether the

belief has fluctuated over the week by looking at how weak and how strong the belief

has been over the past week (1= belief is very weak; 10= belief is very strong); 5. how

accurate the belief is (1= totally inaccurate; 10= totally accurate); 6. the extent to which

others share the same beliefs (1= totally disagree; 10= completely agree); 7. how the

patient views similar or differing beliefs; 8. how effective the compulsions are (1= totally

ineffective; 10= completely effective); 9. the extent to which their disorder has caused

their obsessive belief (1=totally probable; 10= totally improbable); and 10. degree of

resistance toward the belief (1= total resistance; 10= no resistance). The average of the

10 items provides an estimate of one's degree of OVI, where higher scores (over 6)

represent greater levels of OVI. The predictive validity of the OVIS was superior to a

single item assessment of overvalued ideas available on the Yale-Brown Obsessive

Scale (Y-BOCS) in predicting treatment outcome for compulsions (Neziroglu et al.,

1999). It is worth noting that extreme high scores on the OVIS do not imply delusional

symptoms. The distinction is that at some point in the course of the evaluation, the

youth must be capable of acknowledging that the symptoms may be unreasonable, or

that others may view these symptoms as unreasonable.

2.3 Procedure

Parents of all participants provided informed consent for their child to participate,

and the child provided assent. A total of *n*=55 completed the questionnaires at baseline.

Of those, *n*=13 (23.6%) were enrolled in behavioral treatment and completed the

measures again at posttreatment (see description of treatment below). A doctoral-level

clinical psychologist or a psychiatrist screened all potential participants independently.

During the intake interview, diagnostic scales (ADIS-PV, CY-BOCS and CSDS) were

administered. Adolescents completed each of the scales. Those who met inclusion

criteria were administered the additional study measures.

During the second interview, specific psychological areas with potential

correlation were evaluated using the OVIS and OBQ-44-CV. Questions focused on

obsessions and compulsions, as well as on the report and description of the main OCD

belief. The main belief was defined as the belief associated with the greatest distress or

impairment in social and occupational functioning. The main belief is assessed by

asking patients which obsessions or compulsions interferes with their life and what are the disastrous consequences if the compulsion is not performed, e.g. I believe I need to wash my hand after touching the flush in the toilet to avoid the germs of others. Otherwise I may get seriously ill or inflict an illness on to others.

2.4 Treatment

Treatment was comprised of the following standard elements: Sessions one through three covered psychoeducation regarding OCD, including specific ways the condition manifests in children and adolescents, and what to expect in treatment. These three sessions were broken down further such that the first session the parents and child met together for 15 minutes, followed by 45 minutes with the child alone; the second session was one-on-one between the patient and therapist for one hour; and the third session was the child alone with 15 minutes followed by 45 minutes with the child and parents.

Following the psychoeducation phase, treatment was weekly, on an individual basis, for a total of 6 months (24 sessions). Treatment comprised exposure with response prevention, and cognitive therapy targeting specific obsessive-compulsive beliefs endorsed by the child. Accordingly, the typical within-session structure included brief cognitive therapy prior to initiating ERP, and additional cognitive therapy following completion of ERP exercises. This approach is justified by its emphasis on activation of relevant cognitive domains as well as habituation, which are considered core mechanisms of change in the broader CBT model for OCD (see, for a discussion, Abramowitz et al., 2005). One of the sessions each month was also with the parents to review treatment progress and cover methods for ensuring continuity of treatment –

related exercises between sessions. Finally, all sessions included coverage of completion of between-session homework and compliance.

2.5 Data Analytic Plan

All data analyses were conducted using SPSS. Correlational analyses were conducted between obsessive-compulsive scales (CY-BOCS, OBQ) and OVI and disability (CSDS). To test moderation, regression analyses were conducted to investigate whether the association between symptom severity or disability and obsessive beliefs depends on the degree OVI is endorsed. Variables were centered to avoid multicollinearity problems, followed by computing the symptom-severity-by-overvalued-ideation interaction term, or disability by overvalued ideation interaction term (Aiken and West, 1991), with the corresponding two centered predictors and the interaction were entered into a regression model. Full model statistics (ΔR^2, and associated F-ratios) and β-weights for individual variables were reported. Finally, we examined treatment outcome in a subset of youth (n=13) who underwent cognitive-behavior therapy by calculating the reliable change index (RCI; Jacobson and Truax, 1991) for each and presenting the average for each of the major measures.

3. Results

As predicted, Pearson correlations revealed significant associations between OVI and disability scores (CSDS) for school disability, $r(55) = 0.59$, $p < 0.01$, and social disability $r(55) = 0.45$, $p < 0.01$. Also as predicted, OVI was significantly associated with OCD total severity scores (CY-BOCS), $r(55) = 0.92$, $p < 0.01$, obsession scores, $r(55) = 0.68$, $p < 0.01$, and compulsion scores, $r(55) = 0.67$, $p < 0.01$.

OVI scores were also significantly correlated with obsessive beliefs (OBQ). Pearson correlations revealed associations between OVI scores and scores for the responsibility/overestimation of threat subscale on the OBQ, $r(55) = 0.53$, $p < 0.01$; perfectionism/intolerance of uncertainty subscale of the OBQ, $r(55) = 0.76$, $p < 0.01$; and importance of thoughts/control of thoughts subscale of the OBQ, $r(55) = 0.85$, $p < 0.01$.

3.1 Tests of overvalued ideation as a moderator

As described in the data analysis section, we conducted moderator tests in accordance with recommendations from Aiken and West (1991). In the first step, two variables were included: obsession severity and OVI. These variables accounted for a significant amount of variance in obsessive beliefs related to overimportance and control of thoughts, $R^2 = 0.75$, $F(2, 52) = 78.87$, $p < .001$. Next, the interaction term between obsession severity and OVI was added to the regression model, which accounted for a significant proportion of the variance in need to control or over-importance of thoughts obsessive beliefs, $\Delta R^2 = 0.22$, $\Delta F(1, 51) = 4.98$, $p < 0.001$, $\beta = -0.15$, $t(51) = -2.23$, $p = 0.30$ (see Table 5). Given the number of tests, we applied the False Discovery Rate corrected test to control for Type I error (FDR; Benjamini and Hochberg, 1995). Results indicate that OVI and obsession severity were significant predictors of OC beliefs, but that OVI was a nonsignificant moderator of the relationship, after controlling for Type I error (FDR critical p-value = 0.008).

Similar results were observed when moderator tests were conducted for symptoms and OVI in predicting functional disability, where significant models were obtained, but no significant moderation was observed. For school functional disability,

the first step regression included OVI and obsession severity, which accounted for a significant amount of variance in school functional disability, R^2 = 0.42, $F(2, 52)$ = 18.76, $p < 0.001$. Next, the interaction term between OVI and obsession severity was added to the regression model, which accounted for a significant proportion of the variance in need to control or over-importance of thoughts obsessive beliefs, ΔR^2 = .05, $\Delta F(1, 51)$ = 4.62, $p < 0.001$, β = -.23, $t(51)$ = -2.149, p = .0036 (see Table 6). No significant models were observed for social and family related functional disability measured by the CSDS.

3.2 Treatment outcome

As noted in the data analysis section, RCI (Jacobson and Truax, 1991) were calculated to determine if changes within participants were clinically significant. Mean RCI scores were calculated. Mean RCI scores are as follow: CYBOCS Total = 2.33, CYBOCS Obsessions = 1.48, CYBOCS Compulsions = 1.34, OVIS = 1.77, CSDS School =1.61, CSDS Social = 1.46, CSDS Family = 2.57, responsibility/overestimation of threat subscale of the OBQ = 4.32, perfectionism/intolerance of uncertainty subscale of the OBQ= 1.23, importance of thoughts/control of thoughts subscale of the OBQ = 0.60. The RCI calculation converts scores into standardized z-scores, where scores above a 1.96 cutoff are deemed statistically significant. Only CYBOCS total scores, CSDS Family scores, and OBQ Factor 1 (Responsibility/Threat Estimation) scores showed statistically significant change on average. See Table 4 for descriptive data related to treatment outcome across symptom measures.

4. Discussion

The present study aimed to better understand the presence of overvalued ideas in adolescents. Results generally showed that overvalued ideation closely correspond to

symptom severity and obsessive-compulsive beliefs in youth with OCD. In previous studies, only a single clinician rating on item 11 of the CY-BOCS (Storch et al., 2008) and the BABS (Storch et al., 2013) determined the extent to which overvalued ideation influenced severity of impairment in children. Results demonstrated that a considerable subset of pediatric OCD patients exhibit poor insight and have high overvalued ideation regarding the nature of their obsessions and compulsions. This study sought to evaluate the relationship between overvalued ideation and measures of obsessive-compulsive symptoms and beliefs, and functional disability in an adolescent treatment-seeking sample. Results suggest that overvalued ideation is associated with greater severity of symptoms and obsessive-compulsive beliefs, and is associated with greater levels of functional disability.

In the present study, a subset of adolescents received CBT, specifically exposure with response prevention. Significant improvement was observed for symptom severity and obsessive-compulsive beliefs. Although there was significant and clinically meaningful improvement, the symptom severity scores, and disability scores remained clinically relevant (i.e., severity changed from severe to moderate), following 24 sessions. This comparably modest rate of improvement is possibly the result of the range of OVI in the sample. Given that OVI was highly correlated with symptom severity, it could be expected that this had an impact on the rate of improvement. Future research warrants tests of mediation for this association. On the other hand, it is also possible that OVI varies with age. In a large sample (*n*=292) of youth with OCD, Selles et al. (2014) found that insight (or overvalued ideation) improved as children got older. This means that, as adolescents are more likely to seek relief from adverse

emotional experiences, and symptom severity and expression is worse at this developmental stage, it could be expected that overvalued ideation would not necessarily serve as a useful prognostic marker. This is especially salient as treatment employing exposure with response prevention alleviates anxiety relatively rapidly, which would render overvalued ideation less relevant. However, it is also recognized that adults with OCD can present with OVI, and treatment using standard CBT tends to be challenging under these conditions (i.e., Neziroglu et al., 2001). As a result, additional treatment development is warranted to modify CBT to specifically address this complex feature of the disorder.

The possibility that overvalued ideation are germane to adolescent OCD remains a possibility, but this would require that the measure assess this construct in a manner consistent with at least two components specific to this age group. First, it will be necessary to construct a measure that addresses the specific cognitive features of OCD as it relates to adolescents, with attendant features covering putative near-delusional ideation. This is an essential feature of overvalued ideation generally, which are beliefs held with such strength as to fall just short of delusions (Kozak and Foa, 1994). The second is to identify ways that problematic levels of overvalued ideation can be distinguished from simply the pursuit of alleviating symptomatic experiences. In adults, the prototypical obsessive-compulsive sufferer has rational awareness of the senselessness of symptoms. Since this premise does not hold in child and adolescent OCD, true overvalued ideation would need to be assessed through a different means. This is particularly relevant in this report since there was a close correspondence between OCD severity and OVIS. Future research should determine methods for

assessing overvalued ideation in children and adolescents in a manner that is developmentally appropriate.

While this is, to our knowledge, the first study to evaluate OVI in a sample of adolescents with OCD, there are several important limitations to consider in interpreting the findings. First, as noted above, the assessment of OVI in youth may be expressed in a unique manner compared to adults. Accordingly, developmentally appropriate measures of OVI may be necessary to fully evaluate how this construct impacts symptom severity and treatment outcome in youth with OCD. Second, we acknowledge that our mediator tests were conducted with a small sample of youth who completed treatment for their symptoms. Accordingly, follow-up investigations with larger samples are called for to determine whether OVI is a mechanism of outcome in youth OCD. Finally, while this study is also distinguished by being among the few that assessed functioning as well as symptoms in relation to OVI, further assessment of functional outcomes that are based on behavioral observations rather than self or informant report is necessary.

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Table 1: *Participant Demographics*

Baseline	N = 55
Mean Age (in years)	14.35 (0.89)
Female	24 (43.6%)
Male	31 (56.4%)
Treatment Completers	N = 13
Mean Age (in years)	14.00 (1.00)
Female	3 (23.1%)
Male	10 (76.9%)

Table 2: Obsessions and compulsions in full sample (N=55)

Obsessions	_N (%)_
Aggression	36 (65)
Somatic	31 (56)
Symmetry	17 (31)
Sexual/Religious	15 (27)
Miscellaneous	15 (27)
Compulsions	
Checking	36 (65)
Repeating	35 (64)
Ordering	26 (47)
Washing	23 (42)
Mental Rituals	20 (36)
Miscellaneous Compulsions	13 (24)
Hoarding	11 (20)

Note. Symptoms listed based on broad domains from the checklist portion of the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS). Hoarding is included here as the checklist and data were collected prior to the development of the DSM-5 and the separation of hoarding into a separate diagnosis.

Table 3: *Baseline Measure Descriptive Statistics*

	Mean	SD
YBOCS Obsession	14.95	3.11
YBOCS Compulsions	15.38	2.92
OVIS	5.65	2.75
CSDS School	6.64	1.11
CSDS Social	7.55	1.10
CSDS Family	6.29	0.76
OBQ Factor 1	59.25	4.03
OBQ Factor 2	62.89	8.47
OBQ Factor 3	43.71	7.80

Note. OBQ Factor 1 = responsibility/threat estimation; OBQ Factor 2 = perfectionism/certainty; OBQ Factor 3 = control/importance of thoughts

Table 4: *Treatment Completers (n=13) Descriptive   Statistics*

	Baseline		Post-Treatment	
Measures	Mean	SD	Mean	SD
CYBOCS Obsession	14.15	3.95	10.62	3.31
CYBOCS Compulsions	14.00	1.83	9.62	2.06
CYBOCS Total	28.15	4.60	20.24	3.96
OVIS	7.38	2.22	4.38	1.61
CSDS School	6.46	0.97	5.00	1.23
CSDS Social	7.31	1.03	6.08	1.12
CSDS Family	6.46	0.78	5.08	1.04
OBQ Factor 1	59.31	5.15	40.08	4.05
OBQ Factor 2	60.15	7.93	45.54	2.57
OBQ Factor 3	41.00	6.79	32.77	1.92

Note. OBQ Factor 1 = responsibility/threat estimation; OBQ Factor 2 = perfectionism/certainty; OBQ Factor 3 = control/importance of thoughts

Table 5: *Results from hierarchical regression analyses showing the moderation effect of overvalued ideation on the relationship between obsession severity and obsessive beliefs related to need to control thoughts.*

Steps	Measurement	Unstandardized Coefficients		Standardized Coefficients	t	p	F	ΔF	R^2	ΔR^2
		B	SE	β						
1	-					<0.01	78.87	-	0.75	-
	(Constant)	43.71	0.533		81.95	<0.01				
	Obsession Severity	0.58	0.236	0.23	2.46	0.02				
	OVIS	-1.97	0.267	-0.69	-7.36	<0.01				
2	-					<0.01	58.26	4.98	0.77	0.02
	(Constant)	42.67	0.695		61.39	<0.01				
	Obsession Severity	0.56	0.227	0.22	2.47	0.02				
	OVIS	-1.87	0.260	-0.66	-7.19	<0.01				
	Moderator	-0.18	0.082	-.015	-2.23	0.03				

Note. Moderator term defined by product term for overvalued ideation and obsession severity

Table 6: *Results from hierarchical regression analyses showing the moderation effect of overvalued ideation on the relationship between obsession severity and school functional disability.*

Steps	Measurement	Unstandardized Coefficients		Standardized Coefficients	t	p	F	ΔF	R^2	$ΔR^2$
		B	*SE*	*β*						
1	-					<0.01	18.76	-	0.42	-
	(Constant)	6.64	0.12		57.00	<0.01				
	Obsession Severity	0.13	0.05	0.37	2.58	0.01				
	OVIS	-0.14	0.06	-0.33	-2.32	0.02				
2	-					<0.01	14.91	4.62	0.47	.05
	(Constant)	6.42	0.15		42.16	<0.01				
	Obsession Severity	0.13	0.05	0.36	2.59	0.01				
	OVIS	-0.12	0.06	-0.29	-2.03	0.05				
	Moderator	-0.04	0.02	-0.23	-2.15	0.04				

Note. Moderator term defined by product term for overvalued ideation and obsession severity

Highlights

- Overvalued Ideas (OVI) are a serious and debilitating complication in OCD.

- A sample of adolescents with OCD (n=55) was assessed for OVI as well as symptom severity, obsessive-compulsive cognitions and functional disability.

- OVI was significantly associated with all assessments.

- A subsample (n=13) was treated with cognitive-behavior therapy, with significant improvement in symptom severity and functional disability.