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Symptom Insight in Pediatric Obsessive-Compulsive Disorder: Outcomes of an International Aggregated Cross-Sectional Sample

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Insight in OCD refers to patients' recognition that their obsessions and compulsions are symptoms rather than necessary or natural thoughts and behaviors.¹ An estimated 20 – 45% of youth with OCD exhibit poor/absent insight.^{2–4} Identified correlates of poor insight include younger age,^{2,3,5,6} increased OCD severity,^{2,4,7} impairment,^{4,7,8} and family accommodation;^{2,4} lower intellectual and adaptive functioning;³ and greater depressive symptoms.^{2,3} Poorer insight has also been associated with reduced response across treatment groups (i.e. selective serotonin reuptake inhibitor (SSRI), CBT, combined SSRI plus CBT, or pill placebo).⁹

However, prior studies have featured small samples and examined insight as a dichotomy (i.e., good versus poor insight) despite suggestions of a continuum of insight.^{1,3} Therefore, the present study aggregated a large sample of youth with OCD to examine: the continuum of insight levels in pediatric OCD; clinically relevant differences between insight levels with respect to demographic, OCD-related, and comorbid, correlates; and a model to identify youth with poor/absent insight.

Methods

Participants and Procedures

Data for 852 OCD-affected youth was obtained from six international pediatric OCD programs (see Table S1, available online). All participants had a confirmed OCD diagnosis, as well as a total OCD severity score ≥ 10 , and insight rating, from the *Children's Yale-Brown Obsessive-Compulsive Scale* (CY-BOCS).¹⁰ The sample was 53.1% female and 5–19 years old ($M = 12.86$; $SD = 2.87$). See Table S2, available online, for an overview of participant characteristics for individual programs and the combined sample.

Measures

The primary study measure was the clinician-rated CY-BOCS¹⁰ which assesses for five domains of obsession and compulsion severity along with six constructs considered to be OCD-related. It includes an insight item (Q11) which assesses youths' perception that their concerns or behaviors are reasonable, as well as their perception that a feared outcome may occur if they do not perform their compulsions. As with other CY-BOCS items, Q11 is rated on a five-point scale, specifically 0) Excellent; 1) Good; 2) Fair; 3) Poor; and 4) Lacks Insight/Delusional, and includes descriptors for each rating category.^{3,10} Q11 is the primary measure used in prior studies of insight of pediatric OCD^{2–5,9} and has demonstrated strong inter-rater reliability.³ Child- and parent-rated impairment, family accommodation, and comorbid symptoms were also measured (see Supplement 1, available online).

Results

Aim 1: Insight Rating Distribution

Excellent insight (25.2%; $n = 215$), good insight (37.0%; $n = 315$), and fair insight (26.6%; $n = 227$) ratings were common. A smaller portion of youth were rated as having poor insight (9.7%; $n = 83$) while the complete absence of insight was rare (1.4%; $n = 12$). The infrequency of youth with absent insight necessitated the combination of poor/absent insight categories for all further analyses.

Aim 2: Characteristics Associated with Insight

Outcomes of all univariate analyses are presented in Table 1. One-way analysis of variance (ANOVA) was utilized for continuous variables while chi-square testing was utilized for categorical variables. Given this is the first study to investigate differences across the continuum of insight and that individual tests had varying sample sizes, an $\alpha < .05$ was retained; however, Tukey's test was used to control for family-wise error-rate in post-hoc analyses.

Demographic Domains.—Poorer insight ratings were associated with younger child age ($p < .001$). No other demographic variables significantly differed across insight levels.

Obsessive-Compulsive Domains: Severity of obsessions ($p < .001$), compulsions ($p < .001$), avoidance ($p < .001$), and slowness ($p = .017$) differed across insight groups. The poor/absent subgroup demonstrated more slowness than the excellent insight subgroup and

more severe obsessions, compulsions, and avoidance, than all other subgroups. Indecision, over-responsibility, and doubt did not significantly differ across insight subgroups. Child-rated impairment differed across insight subgroups ($p = .022$), with the poor/absent subgroup reporting more impairment than the excellent subgroup. Ratings of family accommodation also differed ($p = .026$), with greater accommodation in the poor/absent subgroup compared to the fair subgroup. Parent-rated impairment did not significantly differ across insight subgroups ($p = .09$).

Comorbid Domains.—The number of comorbid diagnoses ($p = .024$), presence of an anxiety disorder ($p = .002$), and presence of ADHD ($p < .001$) differed across insight subgroups. The excellent subgroup had fewer comorbid diagnoses compared to the fair subgroup while anxiety disorders were more common among youth with good or fair insight compared to excellent or poor/absent insight. ADHD occurrence increased as insight decreased. Comorbid diagnoses of ODD, tic disorder, and MDD were not associated with insight. No significant differences were found between insight levels on any comorbid symptom scales.

Aim 3: Predicting Insight in Youth

Binary logistic regression was utilized to predict youth with poor/absent insight as compared to youth with combined excellent, good, or fair insight. Only predictors available for the majority of youth were used in analyses ($n = 616$). Predictors were simultaneously entered into the model.

Table 2 presents outcomes of the binary logistic regression. Results indicated that the model was significant: $X^2(24) = 92.36$, $p < .001$, $R^2 = .27$. The model accounted for 27% of the variance in insight classification and correctly predicted 98.3% of youth with excellent to fair insight and 19.2% of youth with poor/absent insight. Youth in the poor/absent subgroup were predicted by younger age, comorbid ADHD, lower CY-BOCS ratings of interference, and higher CY-BOCS ratings of distress, resistance (i.e., less resistance to symptoms) and avoidance.

Discussion

The present mega-analysis examined insight in a large, international, cross-sectional sample of youth with OCD. A majority of youth (88.9%) were distributed between excellent, good, and fair levels of insight, while a smaller portion of youth (9.7%) demonstrated poor insight and very few youth (1.4%) demonstrated absent/delusional insight. This is a lower proportion of youth with poor/absent insight compared to previous studies (20 – 45%).^{2–4}

Differences between insight levels on OCD-severity variables were most notable among the poor/absent subgroup. As hypothesized, worse insight was associated with increased OCD severity, specifically increased distress and avoidance, and decreased symptom resistance. Higher conviction of feared outcomes occurring (particularly as a consequence of failure to engage in compulsions) likely contributes to increased distress, wariness of triggers, and reluctance to resist “protective” symptoms. Conversely, these severity aspects may contribute to poorer insight (e.g., feared outcome seems likely because of distress intensity).

Beyond the above, insight did not appear to have substantial associations with other OCD-specific domains. While self-rated impairment was higher among the poor/absent insight subgroup, when accounting for distress, resistance, and avoidance in the regression analysis, youth with poor/absent insight demonstrated less interference than those with better insight and did not report more time spent on, or less control over, symptoms. Higher distress, resistance, and avoidance, also likely contribute to higher levels of family accommodation in the poor/absent insight subgroup, although family accommodation may also reinforce poor insight via implicit endorsement of threat.

Differences in age and ADHD prevalence were linear along the continuum of insight, with increasing ADHD prevalence and younger age as insight decreased. These differences may suggest neurodevelopmental domain contributions to insight (e.g., meta-cognition, theory of mind). Conversely, these associations could be driven by inherent limitations in the clinical assessment of these youth (e.g., difficulties identifying/describing core fears, impulsivity towards compulsive urges despite no strong beliefs).

Beyond ADHD, insight groups did not demonstrate substantial differences in comorbid domains. No ratings on the CBCL were significantly different across insight groups. The number of comorbid disorders was higher among the fair compared to excellent insight subgroup while comorbid anxiety was more common among the good and fair groups, compared to excellent and poor/absent subgroups. Given the single item measure and site differences in these domains, further replication of these outcomes is warranted before drawing conclusions.

While the regression model successfully predicted 27% of the variance in insight dichotomization and correctly predicted most youth with excellent to fair insight, only 19% of youth with poor/absent insight were correctly identified by the model. This suggests that additional variables not included in the model may contribute to insight differences and/or that differences exist between youth with poor/absent insight.

The present study has several limitations. First, poor/absent subgroups were combined due to the infrequency of absent-delusional insight. Second, data aggregation was retrospective and included sites with varying characteristics. Third, insight was measured by a single item that is not a comprehensive or true continuous measure of insight and does not distinguish between components/presentations of insight. Finally, while data amalgamation significantly reduced testing compared to an individual sample approach, multiple testing was conducted which increases the chance of type-I error.

In conclusion, ongoing evaluation of insight in pediatric OCD is warranted. The dichotomization of insight was supported by OCD-related outcomes; however, further consideration of a continuum of insight may be warranted given differing patterns across insight groups for other domains (e.g., age, ADHD, comorbid anxiety). Moving forward, there is a clear need for a brief, but comprehensive and developmentally tailored measure of insight for pediatric OCD that can allow better differentiation between aspects of insight. In addition, future studies that include additional correlates, explore the longitudinal influence

of insight on course/long-term outcomes, and examine insight's impact on treatment outcomes are needed.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Univariate analyses across insight levels.

Demographics	<i>n</i>	Sample Average	Insight Rating (% or <i>M</i>)				<i>X</i> ² or <i>F</i>
			Excellent	Good	Fair	Poor/Absent	
Female Gender	829	53%	56%	53%	53%	46%	2.36
Age (years)	829	12.86	13.19	13.08	12.71	11.81	6.02 ^{**ab}
Currently on Meds	372	36%	37%	32%	39%	34%	1.38
OCD Constructs	<i>n</i>	Sample Average	Insight Rating (<i>M</i>)				<i>F</i>
			Excellent	Good	Fair	Poor/Absent	
Obsession Severity	852	11.88	11.84	11.44	11.87	13.48	10.77 ^{**abc}
Compulsions Severity	852	12.57	12.58	12.00	12.63	14.28	13.75 ^{**abc}
Avoidance	742	1.65	1.50	1.58	1.67	2.13	6.59 ^{**abc}
Degree of Indecisiveness	727	1.07	0.92	1.06	1.18	1.16	2.08
Overvalued Sense of Responsibility	719	0.80	0.67	0.85	0.88	0.80	1.79
Pervasive Slowness	719	1.19	1.03	1.09	1.29	1.41	3.30 ^{*a}
Pathological Doubt	716	0.98	0.82	1.05	1.07	0.93	2.62
Child-Rated Impairment (Z-Score)	468	0	-0.17	0.00	0.08	0.29	3.23 ^{*a}
Parent-Rated Impairment (Z-Score)	528	0	-0.07	-0.01	-0.04	0.29	2.16
Family Accommodation (Z-Score)	601	0	-0.04	0.04	-0.14	0.29	3.11 ^{*c}
Comorbidity	<i>n</i>	Sample Average	Insight Rating (% or <i>M</i>)				<i>X</i> ² or <i>F</i>
			Excellent	Good	Fair	Poor/Absent	
Number of Comorbid Disorders	696	1.05	0.84	1.08	1.20	1.04	3.17 ^{*d}
Anxiety Disorder	712	42%	32%	48%	48%	34%	15.28 [*]
ADHD	707	15%	8%	12%	20%	26%	19.17 ^{**}
ODD	704	7%	8%	7%	6%	5%	1.09
Tic Disorder	749	16%	16%	14%	18%	19%	2.41
MDD	723	6%	8%	10%	4%	6%	5.60
CBCL - Anxious/Depressed (Z-Score)	528	0	-0.06	0.00	0.03	0.10	0.45
CBCL - Withdrawn/Depressed (Z-Score)	549	0	-0.11	0.02	0.00	0.21	1.67
CBCL - Attention Problems (Z-Score)	544	0	-0.07	-0.04	0.02	0.26	1.84
CBCL - Aggressive Behaviors (Z-Score)	544	0	-0.04	-0.03	-0.05	0.31	2.29

*
p < .05**
p < .001^aExcellent vs Poor/Absent;^bGood vs Poor/Absent;^cFair vs Poor/Absent;^dExcellent vs Fair.

Note: OCD = Obsessive Compulsive Disorder; ADHD = Attention-deficit/hyperactivity disorder; ODD = Oppositional defiant disorder; MDD = Major Depressive Disorder; CBCL = Child Behavior Checklist.

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Table 2.

Outcomes of binary logistic regression predicting poor-absent insight versus excellent – fair insight ($n = 616$).

Predictors		B (SE)	Wald	OR	95% CI
Site		-	13.42	-	
Demographics	Age	-0.16 (0.05)	9.27 **	0.85	0.77 – 0.95
	Child Gender	-0.38 (0.31)	1.54	0.68	0.37 – 1.26
Comorbid Disorders	Anxiety	0.36 (0.34)	1.18	1.44	0.75 – 2.78
	ADHD	-0.85 (0.39)	4.64 *	0.43	0.20 – 0.93
	ODD	0.27 (0.64)	0.18	1.31	0.37 – 4.58
	Tic Disorder	0.17 (0.41)	0.18	1.19	0.54 – 2.63
	MDD	-0.11 (0.62)	0.03	0.90	0.27 – 3.01
CY-BOCS Core Items	Time Spent	0.06 (0.12)	0.23	1.06	0.83 – 1.35
	Interference	-0.33 (0.14)	5.88 *	0.72	0.55 – 0.94
	Distress	0.42 (0.17)	5.95 *	1.52	1.09 – 2.12
	Resistance	0.34 (0.12)	7.96 **	1.41	1.11 – 1.79
CY-BOCS Extension Items	Control	0.03 (0.14)	0.06	1.03	0.78 – 1.37
	Avoidance	0.54 (0.15)	12.40 ***	1.71	1.27 – 2.31
	Degree of Indecisiveness	-0.04 (0.14)	0.08	0.96	0.73 – 1.26
	Overvalued Sense of Responsibility	0.25 (0.16)	2.34	1.29	0.93 – 1.77
	Pervasive Slowness	-0.02 (0.15)	0.01	0.91	0.73 – 1.32
Pathological Doubt		-0.06 (0.16)	0.14	0.94	0.68 – 1.30

*
 $p < .05$;

**
 $p < .01$;

 $p < .001$

Note: OR = Odds Ratio; CI = Confidence Interval; ADHD = Attention-deficit/hyperactivity disorder; ODD = Oppositional defiant disorder; MDD = Major Depressive Disorder; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale.