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Obsessive-Compulsive Symptoms in Children and Adolescents:
Symptomatology, Impairment and Quality of Life

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Abstract

Although the “presence of Obsessive-Compulsive (OC) symptoms” and “OC-related impairment” are the main criteria to diagnose Obsessive-Compulsive Disorder, the significance of symptomatology versus impairment in explaining quality of life remains unclear. The present study relies on two samples including 462 children (8-11 years old) and 265 children and adolescents (10-17 years old) and explores how self-ratings of specific OC symptoms and OC impairment are associated with father ratings of childhood quality of life. Hierarchical regression analysis was used to investigate the additive effect of OC impairment beyond OC symptomatology (and vice versa) in predicting quality of life. The results demonstrated that specific OC symptoms and OC impairment are differentially related to quality of life, underscoring the additive value of OC impairment beyond OC symptomatology, whereas the reverse was not the case. This finding highlights the importance of measuring impairment besides symptomatology to identify those OC features in childhood that are most significantly related to decreased quality of life.

Keywords: Obsessive-Compulsive Symptoms; Children; Adolescents; Symptomatology, Impairment; Quality of Life.

Obsessive-Compulsive Symptoms in Children and Adolescents:
Symptomatology, Impairment and Quality of Life

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association [APA]) prescribes both the “presence of Obsessive-Compulsive (OC) symptoms” and “OC-related impairment” as diagnostic criteria of the Obsessive-Compulsive Disorder (OCD) [1]. However, these two different constructs are not always captured during assessment procedures, as questionnaires solely focusing on OC symptomatology are usually administered [2]. Even when both constructs are included in the assessment process, the impairment measure is often confounded with that of symptomatology, neglecting the fact that these constructs need to be measured independently since they are not always linearly related [3]. A patient may for instance be extremely impaired in his daily functioning as a result of one single symptom, whereas another patient may report only mild impairment while experiencing several obsessions and compulsions. In order to adequately define the mental status of the individual, it is hence important to describe both OC symptomatology and OC impairment in a comprehensive and independent manner [3].

Assessing Both OC Symptomatology and OC Impairment in an Age-Appropriate Way

Several OC questionnaires for adults have been developed that pay more attention to the measurement of impairment in addition to symptomatology [e.g., 3]. These scales, however, are not suited for younger age groups due to differences in terms of reading skills, underlying factor structure [3] and developmental variations in the phenotypic expression of OC pathology across age [4]. This developmental discontinuity has stimulated a number of researchers to construct age-specific questionnaires for younger age groups. Most have been constructed using a top-down approach deleting and/or revising items of measures that are developed for adults [e.g., 5]. However, to guarantee that the diversity of youth OC pathology characteristics is covered in a questionnaire, the use of an age-specific bottom-up approach is probably more appropriate [6]. One of the most recent bottom-up constructed OC taxonomies for youth, that independently assesses both OC symptomatology and impairment, is the Youth Obsessive-Compulsive Symptoms Scale (YOCSS) [7]. To date, however, its validity has only been established for adolescents and not for younger ages [7].

Deconstructing OC Pathology in Predicting Quality of Life

These recent developments offer us the opportunity to assess OC impairment next to OC symptomatology, conform the DSM-5 OCD criteria [1]. However, the clinical and theoretical significance of this OC impairment construct remains unclear and needs further research. In addition, it is interesting to study how both OC symptoms and impairment relate to quality of life given the increased attention for well-being of children with psychological difficulties. Although quality of life and impairment are to some extent related as they both have an evaluative nature [8,9], they are distinct constructs [10,11] preferably investigated separately [11,12], as for instance is done by Jacoby et al. [10] examining OCD in adults.

Quality of life refers to a general and broad sense of overall subjective well-being and is determined by multiple factors including socioeconomic status [13], family and social network [14], positive emotionality [15], coping strategies [16], and psychopathology (both symptoms and impairment). Impairment is more narrowly defined and refers to the objective difficulties a child experiences in daily life due to the presence of psychological symptoms [1,17], such as OC symptomatology and co-occurring symptoms and disorders. An individual may hence experience impairment, but report relatively good quality of life because s/he lives in a supporting neighbourhood/society, has developed adequate coping skills and/or has an optimistic character. Quality of life has more an experiential nature, whereas impairment has more to do with the functional status of the individual. Quality of life is further usually interpreted as a more qualitative index, whereas OC impairment can be considered as more quantitative, reflected in for example the amount of time that is spent on compulsions [7,10,18].

The relevance of quality of life as a criterion measure has been highlighted for psychopathology in general [e.g., 19], and for OC pathology in particular [e.g., 10]. Furthermore, the idea of deconstructing OC pathology in symptomatology and impairment for predicting quality of life is also in line with Macy's [20] review, where she argues to consider OC symptomatology, quality of life, and OC impairment measures in conjunction. Although this approach is relatively new for pediatric OCD, it has recently been applied in the study of major depression [21].

The particular importance of quality of life with regard to pediatric OCD research can be situated in the fact that quality of life is especially negatively affected by early-onset OC

pathology [22], resulting in an unfavorable outcome over time [23]. Also during the treatment process, quality of life assessment may indicate treatment effectiveness and recovery rate [20]. Despite its significance, quality of life has not received much attention in the OCD literature [10], and particularly not in younger age groups [but see 22,24-28]. It remains unclear so far how childhood quality of life relates to OC impairment versus OC symptomatology. Such knowledge, however, is essential to define treatment objectives targeting those aspects that negatively affect quality of life in children and adolescents.

Describing OC Pathology and Quality of Life from Different Informant Perspectives

Quality of life in childhood psychopathology research, including OCD research, is frequently assessed via parental reports [29] because children often lack the cognitive and emotional skills to adequately reflect on their living conditions and well-being [30]. In addition, parental ratings are regularly used to avoid common rater bias [31], when children have to make self-descriptions of symptoms of a more internalizing nature such as OCD [32]. For psychopathology ratings, agreement between parents and children is usually low to moderate with correlations in the .20s, whereas agreement between maternal and paternal ratings is moderate to high as indicated by correlations in the .60s [e.g., 33,34]. Agreement across raters for quality of life ratings is comparable, although De Clercq, De Fruyt, Koot, and Benoit [35] showed that parents and children who survived cancer converged twice as high (.70) than children from the general population (.32), suggesting that parents and children experiencing or having experienced chronic disease conditions agree substantially stronger.

The Present Study

The current study will examine children's self-reported OC pathology (i.e., symptomatology and impairment) and their associations with father ratings of childhood quality of life. The relative contribution of symptoms versus impairment will be described and multiple indicators of quality of life will be considered (physical, emotional, social and school). The data reported here are part of a larger study in which mothers provided personality ratings (not considered in the present report) and fathers rated quality of life. The psychometric properties of the YOCSS [7] for children aged 8-11 years will be examined first.

Method

Participants and Procedure

Sample 1. To examine the applicability of the YOCSS in childhood, we relied on a general population sample of children recruited in primary schools between 8 and 11 years old ($N = 462$, 51.3% girls, mean age = 9.71 years, $SD = 1.04$), including four age groups (8 years old, $n = 68$; 9 years old, $n = 132$; 10 years old, $n = 129$; and 11 years old, $n = 133$). Detailed verbal and written instructions were provided and participants were assured that the information would only serve research purposes and would be treated confidentially. After written informed consent was obtained, children completed the YOCSS at school or at home.

Sample 2. Children and adolescents between 10 and 17 years old ($N = 265$, 58.9% girls, mean age = 13.93 years, $SD = 2.17$) were recruited via primary and secondary schools. They completed the YOCSS at school after having received detailed verbal and written instructions, whereas fathers ($N = 129$) completed the Pediatric Quality of Life Inventory (PedsQL) [36,37]. Children and adolescents were also administered the Screen for Child Anxiety Related Emotional Disorders (SCARED) [38] to examine co-occurring problems. All participants were assured that the information would only serve research purposes and would be treated confidentially. Written informed consent was obtained from all participants.

Measures

Youth Obsessive-Compulsive Symptoms Scale (YOCSS). The YOCCS is a self-report scale assessing both youth OC symptomatology (57 items) and OC impairment (11 items) [7]. Items are rated on a 5-point Likert scale ranging from 1 (*not at all characteristic*) to 5 (*very characteristic*). The mean of the 57 OC symptom items represents the YOCSS Symptom Score and comprises three higher-order OC symptom domains that all consist of a number of more specific lower-order OC symptom facets. The Obsessive symptom domain contains the facets Aggression, Guilt, Sensitivity to physical appearance and Somatization; the Compulsive symptom domain includes the Repeating, Magic games and Hoarding facets; and finally, the Order/Clean/Perfect symptom domain consists of the facets Orderliness, Cleanliness, and Perfectionism. The mean score of the 11 OC-related impairment items is reflected in the YOCSS Impairment Score, including concrete aspects, such as time

occupied/frequency, interference in functioning, associated distress, disregarding obsessions or refraining from compulsions, and avoidance.

This questionnaire was validated in adolescents between 12-18 years with adequate validity and reliability for this age group [7]. In the current study, the YOCSS Symptom Score showed an excellent Cronbach's α [39] of .95 (Sample 1) and .94 (Sample 2) and the YOCSS symptom domains indicated adequate Cronbach's α s of .88 (Obsessive; in both samples), .86 (Compulsive; in both samples), and .89 (Sample 1) and .87 (Sample 2) (Order/Clean/Perfect). The YOCSS Impairment Score also demonstrated an adequate Cronbach's α of .84 (Sample 1) and .88 (Sample 2). The Cronbach's α s for the symptom facets ranged between .70 (Aggression) and .76 (Cleanliness) in the child sample (Sample 1) indicating adequate internal consistencies, except for the facet of Sensitivity to physical appearance that shows an acceptable reliability ($\alpha = .66$). This can possibly be explained by the lower number of items of this facet ($n = 3$) and by the lower item-total squared multiple correlation of one item ($r = .14$). In Sample 2, the internal consistencies for the symptom facets ranged between .70 (Aggression) and .77 (Repeating), also pointing to adequate internal consistencies. Only the facets Hoarding ($\alpha = .64$) and Orderliness ($\alpha = .68$) demonstrated somewhat lower but still acceptable reliabilities, due to the lower item-total squared multiple correlation of one item in each facet.

Pediatric Quality of Life Inventory (PedsQL). Fathers were administered the Dutch version of the PedsQL [36,37] consisting of 23 items assessing their child's quality of life. Items are rated on a 5-point Likert scale and are linearly transformed (i.e., 0 = 100, 1 = 75, 2 = 50, 3 = 25, and 4 = 0) with higher scores reflecting a better quality of life. The items comprise the four subscales of Physical, Emotional, Social, and School functioning that are summarized in a Total functioning score. Varni et al. [37] reported that the PedsQL is a valid and reliable instrument for assessing quality of life in healthy school and community populations as well as pediatric populations with acute and chronic health conditions. In the current study, the Total functioning scale showed an adequate reliability with a Cronbach's α coefficient of .89 and also the subscales demonstrated adequate reliability coefficients of .77 (Social), .77 (School), .84 (Physical), and .84 (Emotional) [39].

Screen for Child Anxiety Related Emotional Disorders (SCARED). This self-report questionnaire identifies anxiety disorders in children and adolescents between 9 and 18

years old [38]. The measure can be used in both clinical [38,40] and community samples [41] and consists of 41 items, rated on a 3-point Likert scale. The SCARED comprises four subscales that are consistent with the structure of anxiety disorders according to the DSM: Panic/Somatic, Social phobia, Generalized anxiety and Separation anxiety [40]. Psychometric studies indicated that the SCARED is a valid and reliable instrument [38,40]. Also in the current study, excellent reliabilities are found with Cronbach's α coefficients of .92 (Social phobia), .94 (Generalized anxiety), .95 (Separation anxiety) and .96 (Panic/Somatic).

Statistical analyses

Preliminary analyses: Sample 1. To explore the psychometric properties of the YOCSS across age (8-11 years), internal consistency and factor structure were examined in each age group separately.

Main analyses: Sample 2. First, descriptive statistics of the YOCSS and PedsQL were reported and validity is examined by means of Pearson product-moment correlations between the YOCSS OC impairment score and both the YOCSS OC symptom score and the SCARED subscales. Fisher's *r*-to-*Z* transformations were used to investigate whether the correlation coefficients significantly differed from each other. Second, the relations between YOCSS OC impairment and OC symptomatology were investigated to explore potential multicollinearity. Third, correlations were calculated to explore how OC symptomatology and OC impairment are associated with quality of life. Finally, hierarchical regression analysis was used to examine the value of OC impairment beyond OC symptomatology (and vice versa) in the prediction of quality of life.

Results

Preliminary Analyses: Extending the Applicability of the YOCSS toward Children

The results of the psychometric analyses are reported for each age group separately enabling a direct comparison (Table 1). Across ages, good to excellent reliabilities are found, with Cronbach's α coefficients ranging between .80 and .95, suggesting that children are able to complete the YOCSS in a consistent way. At a structural level, however, differences between the age groups are found in terms of fit of the underlying three-factor structure of OC symptomatology [42-46]. As represented in Table 1, the analyses indicate excellent model fit indices for the 10 and 11 year olds, whereas the results for the 8 and 9 year olds demonstrate inadequate fit indices. These findings suggest that the use of the YOCSS can be extended

toward 10 and 11 year olds. All further descriptive, correlational and regression analyses were therefore conducted on a sample that included only participants from 10 years onwards (i.e., Sample 2).

Descriptive Statistics

The means, standard deviations, minimum and maximum scores for all YOCSS and PedsQL scales are reported in Table 2. In line with the expectations for a general population sample, most children and adolescents have low OC symptom and impairment scores (i.e., $M = 1.60$, $SD = 0.59$ across all YOCSS-scales), with about 3% of the sample scoring beyond a clinical cut-off value of “1.5 SD above the mean” for OC symptomatology. This percentage is in line with the prevalence rates of pediatric OCD in the general population [47]. Table 2 further shows that for most children and adolescents a relatively good quality of life ($M = 85.62$, $SD = 13.12$) was reported, although there were substantial individual differences.

Specific Associations between OC Symptomatology, OC Impairment and Quality of Life

Table 3 shows a strong positive relation between OC impairment and OC symptomatology, as indexed by a correlation coefficient of $r = .72$ ($p < .001$). This association was significantly stronger than the relation between OC impairment and co-occurring symptoms (all $p < .01$ after Fisher's r to Z transformations) as measured by the SCARED subscales, i.e. with Panic/somatic disorder: $r = .61$, $p < .001$; Generalized anxiety: $r = .58$, $p < .001$; Separation anxiety: $r = .48$, $p < .001$ and Social phobia: $r = .31$, $p < .001$. The YOCSS impairment measure hence tapped into impairment due to OC symptoms but also associated pathology. Furthermore, for the OC impairment-OC symptomatology relationship, no multicollinearity was found as indicated by a low variance inflation factor of 1.82.

Table 3 further illustrates the Pearson product-moment correlations of self-reported OC symptoms and impairment with father ratings of the child's quality of life. OC symptomatology and impairment appear to display a similar correlational pattern with quality of life, including negative associations with Total, Emotional, and Social functioning. Both OC symptomatology and impairment appear to be unrelated to physically-related quality of life, whereas OC impairment shows a unique negative relation with school-related quality of life.

At a more detailed level of OC symptomatology, the results suggest that the Obsessive symptom domain is exclusively associated with these aspects of quality of life, whereas the

Compulsive and the Order/Clean/Perfect symptom domains appear to be unrelated. At the facet-level however, a more nuanced picture could be observed with the OC facets Aggression, Repeating and Cleanliness displaying significant negative associations with several quality of life aspects.

OC Symptomatology versus OC Impairment Predicting Quality of Life

Table 4 shows the results of the hierarchical regression analyses predicting father rated childhood quality of life (Total functioning)¹. In step 1, OC symptomatology explains 4% of the variance ($p < .05$; $\beta = -.19$). However, an additional 5% ($F_{change} p < .05$) is explained when adding OC impairment in step 2, indicating that OC impairment ($\beta = -.30$) significantly adds to the prediction of quality of life beyond OC symptomatology ($\beta = .01$). Furthermore, the initial significant relation between OC symptomatology and quality of life in step 1 diminishes (β decreases from $-.19$ to $.01$) when OC impairment is added in step 2.

When the order of entry is reversed, OC symptomatology in step 2 ($\beta = .01$) is not able to explain an additional amount of variance ($\Delta R^2 = .00$, $F_{change} p = ns$) beyond OC impairment in step 1 ($\beta = -.29$), explaining 8% ($p < .01$) of the quality of life variance.

Discussion

The current study aimed to understand quality of life in children and adolescents from both an OC impairment and symptom perspective. It further explored whether the YOCSS would be also applicable in childhood.

YOCSS in Childhood

Although the YOCSS was initially developed for younger age groups, its validity has only been established for adolescents between 12 and 18 years old [7]. The present work, however, showed that the inventory had adequate psychometric characteristics from 10 years onwards. Despite satisfying reliabilities, the YOCSS factor structure had an inadequate fit for 8 and 9 year olds, suggesting that the items are potentially too difficult or that children's cognitive skills of self-reflection at that age are not fully developed [30]. The YOCSS demonstrated hence useful as a self-report inventory in psychological research and diagnostic practice from 10 years onwards.

¹ We did not include age or gender as covariates due to their negligible effects.

Symptoms, Impairment and Quality of Life: Distinct though Related

The YOCSS Total Symptom and Impairment scores were strongly correlated, reflecting the associated though distinct nature of the constructs, with the symptom scales summarizing the variety of OC characteristics at the descriptive level and the OC impairment scale quantifying their impact on the child's daily functioning.

Obsessive symptoms, and especially its facet Aggression, were associated with the largest impairment, followed in decreasing order by the Compulsive and Order/Clean/Perfect symptom domains. These findings are consistent with other YOCSS-work, showing that the Obsessive symptom domain is the most severe as demonstrated by item response theory analyses and further shows the strongest associations with OC impairment, compared to the Compulsive and Order/Clean/Perfect symptom domains [48]. Additionally, the current results are congruent with studies demonstrating that obsessions in youth OCD are especially associated with higher impairment [24]. Also in adults, obsessions are particularly related to larger impairment [8,49-51] and attenuated therapy outcomes [51]. Furthermore, youngsters demonstrating OC impairment showed lower paternal rated quality of life (all domains, except for Physical functioning), what is in line with research reporting that a broad range of functional domains is affected in OCD [22,25,27,28].

Together, these findings underscore the importance to have separate descriptions at the OC symptom and impairment level. Given that normal and pathological OC symptoms are rather similar in content [52] and that normative childhood development is accompanied with frequently occurring rituals and routines that strongly resemble maladaptive compulsive-like behavior [53], the impairment scale becomes especially important in younger age groups to differentiate normal from pathological developments [54].

Paternal ratings of quality of life negatively correlated across all its aspects with self-rated impairment and symptomatology, showing correlations of comparable magnitudes as self- and parental reported psychopathology [55]. The Obsessive symptom domain is the only domain out of three that is significantly negatively associated with father rated quality of life (Emotional, Social, and Total functioning), what is in line with studies demonstrating that particularly obsessions in youth OCD are associated with lower quality of life [28]. At the most fine-grained level, the Aggression OC symptom facet shows the largest impairment and

the strongest negative relationships with Emotional and Social quality of life, what is congruent with the results of Storch and colleagues [26].

OC Symptoms and Impairment versus Quality of Life

Both OC symptoms and OC impairment contributed to quality of life ratings provided by fathers, though impairment contributed most and symptoms did not explain quality of life variance beyond impairment. This finding underscores the importance and necessity to include separate assessments of impairment and symptom description in the OC assessment process, conform the DSM-5 criteria [1] and like operationalized in the YOCSS [7]. A description at the level of OC symptoms is first fundamental to diagnose OC pathology, in addition to other criteria such as impairment [1]. Second, with regard to treatment, it is crucial for the clinician to know which OC symptoms are present, in order to set tailored treatment targets. Third, given that specific OC symptoms are differentially related to impairment and to quality of life, the latter indices are informative to prioritize treatment efforts to affect those OC symptoms associated with decreased well-being. The focus on a separate measurement of impairment has also been advocated by De Fruyt and De Clercq [56] separating the description of symptoms from dysfunction.

The fact that the impairment variable contributed to the prediction of quality of life beyond OC symptoms is congruent with our observation that the YOCSS impairment scale also captures variance associated with the anxiety spectrum co-occurring with the OC symptoms. It is hence important to keep in mind that we can make a distinction between pathology components conceptually, but that impairment ratings are necessarily confounded with variance due to associated problems.

Although the observation that only 8% of the quality of life variance was explained by OC pathology may seem disappointing, this finding is comparable to other studies. Jacoby et al. [10], for instance, recently demonstrated that adult OC symptom dimensions also explained only a limited amount of quality of life variance. Although these findings converge with ours, additional clarifications may explain the restricted shared variance that was observed. A first explanation can be situated in the cross-informant nature of the design to avoid common-rater bias, with research indicating that parent-child agreement concerning childhood mental characteristics is generally low to moderate [33,34]. Also the use of father ratings of childhood quality of life instead of mother or combined parental ratings may have

weakened the association between OC pathology and quality of life [57]. Further, the subclinical nature of OC symptoms that is possibly not severe enough to affect well-being, or the internal nature of OC pathology that not always translates to observable behavior, may have resulted in less strong findings [58]. A final explanation includes the fact that quality of life is affected by a large number of other sources than childhood psychopathology and associated impairment [59] like family and social network factors [14] and social skills training and education [60].

Limitations and Suggestions for Further Research

Strengths of the current study are the administration of the YOCSS in childhood, assessing OC impairment separately, and considering a variety of quality of life domains in childhood and adolescence. On top, a cross-informant design evaluated quality of life using fathers as informants whereas children and adolescents provided self-descriptions of OC symptoms and impairment [22,32], with father ratings of quality of life being relatively new in the pediatric OCD field [22].

Limitations are the exclusive reliance on self-ratings for OC pathology and father ratings for childhood quality of life, especially in light of evidence that perspectives between informants may differ [33,34]. Future studies should include both self and mother and father reports of all constructs of interest to be in a position to examine their shared and unique variance. A second constraint is the use of participants from the general community to study the association between quality of life and clinical phenomena that are rather infrequently represented in the population. Indeed, inspection of the YOCSS' scale means showed that the majority of the symptoms was endorsed infrequently and that on average a relatively high quality of life was reported. Although the low symptom base rates may have affected the observed relationships with impairment and quality of life, it is not uncommon that general population samples are used for this kind of research. Range restriction due to low base rates probably leads to an underestimation of the strength of the relationships, rather than affecting its nature, so the observed relationships are potentially underestimated. A third limitation is that the current work focused on the assessment of OCD symptoms, but co-occurring symptoms and disorders may have also contributed to both the impairment and quality of life ratings. Finally, given the cross-sectional nature of the current study, we were not able to investigate whether causal relations exist between the constructs of interest. Future work

should thus examine OC symptoms and impairment in clinical samples, using multi-informant and longitudinal designs additionally assessing co-occurrent pathology.

Conclusion

The present study underscored the validity of the YOCCS as a self-report measure to describe OC symptoms and impairment from 10 years onwards. The degree of self-reported symptoms strongly converged with the degree of self-reported impairment, with impairment being the most important predictor of father rated quality of life. The paper further sharpened the conceptual distinction between OC symptoms and impairment and the more general construct of quality of life. We look forward to intervention studies targeting OC symptoms using the YOCCS symptom and impairment scales to evaluate therapeutic impact and examine its contribution to improved quality of life.

Ethical Standards

This study has been approved by the Ghent University ethics committee and has therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. All persons gave their informed consent prior to their inclusion of the study.

Conflict of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Table 1

Reliabilities and Confirmatory Factor Structure Fit Indices: Comparison across Age Groups

	Age groups (in years)			
	8 (n = 68)	9 (n = 132)	10 (n = 129)	11 (n = 133)
Cronbach's α				
OC impairment	.81	.87	.80	.85
OC symptomatology	.95	.95	.93	.95
Obsessive Symptom Domain	.89	.89	.85	.89
Compulsive Symptom Domain	.85	.88	.84	.86
Order/Clean/Perfect Symptom Domain	.90	.90	.87	.88
Three-factor structure fit indices				
χ^2/df	1.96	2.26	1.73	.85
RMSEA	.12	.10	.08	.00
SRMR	.05	.05	.05	.03
CFI	.92	.92	.95	1.00
TLI	.89	.89	.93	1.00

Note. The relative or normed chi square (χ^2/df) with a value of ≤ 5 indicates an acceptable fit, ≤ 3 a good fit, and ≤ 2 a very good fit [44,45]; the Root Mean Square of Error of Approximation (RMSEA) often gives the most information about the fit, with values of $\leq .10$ pointing to an acceptable fit, values $\leq .08$ pointing to an approximate model fit, and values $\leq .05$ suggesting a good model fit [42]; a Standardized Root Mean square Residual (SRMR) of $\leq .08$ refers to a good model fit [43]; for the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) a value of $\geq .90$ suggests an adequate model fit [43].

Table 2

Descriptive Data for the YOCSS and PedsQL

Scales	<i>M</i>	<i>SD</i>	Minimum	Maximum	Range
YOCSS (self-ratings)					
OC impairment	1.58	0.44	1.02	3.68	1-5
OC symptomatology	1.51	0.64	1.00	4.73	1-5
Obsessive Symptom Domain	1.79	0.59	1.00	4.46	1-5
Aggression	1.57	0.58	1.00	4.00	1-5
Guilt	1.92	0.74	1.00	5.00	1-5
Sensitivity physical appearance	2.20	1.07	1.00	5.00	1-5
Somatization	1.47	0.54	1.00	4.17	1-5
Compulsive Symptom Domain	1.40	0.43	1.00	3.82	1-5
Repeating	1.43	0.57	1.00	4.29	1-5
Magic games	1.23	0.44	1.00	3.67	1-5
Hoarding	1.54	0.53	1.00	3.67	1-5
Order/Clean/Perfect Symptom Domain	1.59	0.50	1.00	3.54	1-5
Orderliness	1.50	0.58	1.00	3.80	1-5
Cleanliness	1.59	0.57	1.00	3.67	1-5
Perfectionism	1.68	0.58	1.00	4.29	1-5
<i>Mean</i>	<i>1.60</i>	<i>0.59</i>	<i>1.00</i>	<i>4.12</i>	
PedsQL (father ratings)					
Quality of Life Total functioning	84.94	11.03	47.50	100	0-100
Physical functioning	90.28	12.87	40.63	100	0-100
Emotional functioning	79.73	15.86	35.00	100	0-100
Social functioning	88.23	14.81	35.00	100	0-100
School functioning	84.94	11.03	10.00	100	0-100
<i>Mean</i>	<i>85.62</i>	<i>13.12</i>	<i>33.63</i>	<i>100</i>	

Note. YOCSS, Youth Obsessive-Compulsive Symptoms Scale (self-ratings); PedsQL, Pediatric Quality of Life Inventory (father ratings); OC, Obsessive-Compulsive; *M*, Mean; *SD*, Standard Deviation.

Table 3

Correlations between OC Symptomatology, OC Impairment and Quality of Life

YOCSS (self-ratings)	YOCSS		PedsQL (father ratings)			
	OC impairment	Physical funct.	Emot. funct.	Social funct.	School funct.	Total funct.
OC impairment	1.00***	-.15	-.28**	-.23**	-.20**	-.29**
OC symptomatology	.72***	-.11	-.19*	-.20*	-.07	-.19*
Obsessive Symptom Domain	.70***	-.14	-.20*	-.20*	-.06	-.20*
Aggression	.74***	-.05	-.28**	-.23*	-.09	-.22*
Guilt	.59***	-.10	-.16	-.13	-.04	-.14
Sensitivity physical appearance	.47***	-.15	-.11	-.20*	-.06	-.17
Somatization	.49***	-.08	-.12	-.04	.01	-.01
Compulsive Symptom Domain	.62***	.01	-.14	-.17	-.09	-.13
Repeating	.60***	-.06	-.14	-.23**	-.18*	-.21**
Magic games	.49***	.03	.05	-.13	.06	.00
Hoarding	.48***	.07	-.18*	-.05	-.05	-.08
Order/Clean/Perfect SD	.55***	-.13	-.13	-.15	-.04	-.15
Orderliness	.43***	-.11	-.07	-.13	-.06	-.12
Cleanliness	.49***	-.19*	-.15	-.17	-.03	-.17*
Perfectionism	.51***	-.04	-.12	-.09	-.01	-.09

Note. YOCSS, Youth Obsessive-Compulsive Symptoms Scale (self-ratings); PedsQL, Pediatric Quality of Life Inventory (father ratings); funct., functioning; Emot., Emotional; OC, Obsessive-Compulsive; SD, Symptom Domain.

Table 4

Regressions Predicting Father rated Quality of Life: OC Symptomatology vs OC Impairment

	R^2	ΔR^2	Predictor (Standardized β coefficient)
Dependent variable:			
Quality of life (Total functioning)			
Step 1: OC symptomatology	.04 [*]		OC symptomatology (-.19 [*])
Step 2: OC impairment	.08 ^{**}	.05 [*]	OC symptomatology (.01) OC impairment (-.30 [*])
Step 1: OC impairment	.08 ^{**}		OC impairment (-.29 ^{**})
Step 2: OC symptomatology	.08 ^{**}	.00	OC impairment (-.30 [*]) OC symptomatology (.01)

Note. OC, Obsessive-Compulsive.

* $p < .05$, ** $p < .01$, *** $p < .001$.