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Predictors of Parental Accommodation in Pediatric Obsessive-Compulsive Disorder: Findings from the POTS Trial

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Abstract

Objective—Few studies have examined predictors of parental accommodation (assessed via the Family Accommodation Scale-Parent Report, FAS-PR) among families of children with obsessive-compulsive disorder (OCD). No studies have examined this phenomenon utilizing empirically-derived subscales of the FAS-PR (i.e., Caregiver Involvement, Avoidance of Triggers).

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Method—A total of 96 youths (and their families) were included in the current study. Parents were asked to complete the FAS-PR. Families also completed several additional measures assessing child- and parent-level variables of interest. Regression analyses were utilized to examine potential predictors of accommodation.

Results—Results support prior research suggesting that accommodation is ubiquitous among the families of children with OCD. Analyses revealed that several child- (i.e., compulsion severity, oppositional behavior, and frequency of washing symptoms) and one parent- (i.e., symptoms of anxiety) level predictor work jointly to provide significant predictive models of parental accommodation.

Conclusions—Clinicians and researchers should be aware of the impact of specific child-and parent-level variables on family accommodation in pediatric OCD and, in turn, their implications for treatment compliance, adherence, and, by extension, outcome. Study limitations warrant replication and extension of these findings; in particular, researchers may seek to obtain a better understanding of how the various facets of parental accommodation may differentially impact treatment.

Keywords

accommodation; child; obsessive-compulsive disorder; predictors

Obsessive-compulsive disorder (OCD) runs a chronic and impairing course and affects between 1.5 and 2.2 million children in the United States (2-3% prevalence rate).[1,2] Pediatric OCD is associated with marked impairment in functioning.[3-6] and a majority of these children also meet diagnostic criteria for at least one other psychiatric disorder (e.g., 75-84%).[7] Due to the burden this disorder places on children and their families, it is important to examine variables that may be influential in its etiology, maintenance, and treatment.

Researchers have suggested that, within the context of the family, OCD demonstrates a bidirectional relationship. That is, families both influence and are affected by OCD behaviors.[8] More specifically, the relationship between specific parenting behaviors and OCD has been examined;[9-24] within this growing body of research, the phenomenon of parental accommodation has garnered the most research attention. The term accommodation is often defined as participation of family members in an individual's OCD-related rituals (e.g., aiding in ritual completion, facilitating avoidance of situations).[9,12] Several studies have found high rates of accommodation among the families of individuals with OCD,[20,24] as well as a significant, positive correlation between accommodation and family dysfunction,[9,11,12,18,20] symptoms of anxiety and depression (as reported by patients and family members),[9,11] and symptom severity.[9,12,18,20] Collectively, however, little research has examined accommodation among children.[10,14,15,18,24,25] and yet it is at this developmental stage where accommodation might exert its most pernicious effects.

In a recent study of 110 adults with OCD, only OCD severity and cleaning or contamination symptoms were associated with accommodation.[26] The authors posited that patients presenting with particular OCD symptoms (i.e., washing/cleaning) might require modification to existing treatment protocols. Peris and colleagues[20] examined correlates of accommodation, using the Family Accommodation Scale-Parent Report (FAS-PR), among the families of 65 children and adolescents with OCD. Parental involvement in children's rituals, as assessed via a Total Involvement subscale constructed by the authors (consisting of items 1-9 from the FAS-PR) demonstrated a significant, positive correlation with both OCD symptom severity and parental symptoms of psychopathology. Similarly, Storch and colleagues[18] demonstrated that parental accommodation demonstrated a positive

relationship to symptom severity and internalizing and externalizing symptoms (broadly defined by parent-report on the Child Behavior Checklist). The study by Peris and colleagues also highlights the potential importance of examining not only the relationship between child- and parent-level variables and accommodation, but also distinct, yet related facets of parental accommodation.

Several limitations are noteworthy to these studies of accommodation in childhood OCD [20, 18] and highlight the unique contribution of the current study to the literature. First, previous studies have utilized a 13-item version of the FAS-PR that, until recently, had not been validated for use among the families of children with OCD or in a parent-report format.[27] Furthermore, the decision by Peris and colleagues to construct subscales (i.e., Total Involvement, Child Consequences) for the FAS-PR was based on clinical rather than empirical evidence. A recent factor analysis and examination of the scale's psychometric properties suggests that a 12-item version of the FAS-PR consisting of two subscales is most appropriate.[27] In this study, Flessner and colleagues[27] found that the FAS-PR consists of two distinct yet related subscales assessing parental involvement in their child's OCD-related rituals (Involvement in Compulsions) and the family's avoidance of stimuli that may elicit OCD-related behaviors (Avoidance of Triggers). Importantly, the items constituting these empirically-derived subscales are markedly different from that proposed by Peris and colleagues.[20] Second, Peris and colleagues are the only researchers to examine the relationship between parent-level variables and accommodation in some forms. For example, the relationship with other parent-level variables (e.g., symptoms of depression, trait anxiety) remains unexamined. Third, no study has examined the role of specific symptom dimensions (i.e., washing/cleaning, ordering, checking, etc.) on parental accommodation of childhood OCD. The current study aims to address each of these limitations to prior research.

A recent study by Merlo, Lehmkuhl, Geffken, and Storch[28] found that decreased parental accommodation was associated with improved treatment response to cognitive-behavior therapy (CBT) for childhood OCD. Although utilizing an unvalidated version of the FAS-PR, these preliminary findings suggest that understanding variables that may influence the degree to which a parent accommodates their child's OCD-related rituals may have important treatment implications. In turn, given that increased scores on the Involvement in Compulsions and Avoidance of Triggers subscales will impact total accommodation, understanding potentially unique variables that may influence these facets of parental accommodation may provide additional information regarding areas in need of more careful assessment (e.g., child's degree of oppositional behavior, specific symptom profiles, etc.) during the therapeutic process. Therefore, the primary aim of this study is to examine potential predictors of accommodation among the families of children with OCD utilizing both child- and parent-level variables. This study will be the first to examine the role various demographic and phenomenological (including symptom dimensions) variables play in predicting accommodation, as assessed via a newly validated, 12-item FAS-PR, and two empirically derived facets of accommodation (i.e., Involvement in Compulsions, Avoidance of Triggers).

Method

Participants

Participants were recruited as part of a larger study, the Pediatric OCD Treatment Study (POTS), examining the efficacy of CBT alone, pharmacotherapy alone (i.e., sertraline), and combined therapy, as compared to placebo for the treatment of youths (7 to 17 years of age) with OCD.[29] The background, rationale, and procedures for the POTS have been described elsewhere.[30] Informed consent was obtained.

Inclusion and exclusion criteria for the POTS have been documented in detail elsewhere.[29,30] To be included in the current study, parents of participants were also required to have completed the 12-item, FAS-PR (i.e., omitting one or fewer items). In total, 96 youths met inclusion criteria for the study and had completed the relevant measures at baseline. The sample was 51% girls (n = 49) and predominantly Caucasian 93.8% (n = 90). Participants ranged in age from 7 to 17 years old (M = 11.6, SD = 2.7). Per data obtained via administration of the Anxiety Disorder Interview Schedule for Children[31] generalized anxiety disorder (36.5%, n = 35), specific phobia (29.2%, n = 28), attention-deficit hyperactivity disorder (ADHD; i.e., combined, inattentive, or hyperactive type; 20.8%, n = 20), tic disorder (n = 17), separation anxiety disorder (15.6%%, n = 15), and oppositional defiant disorder (8.3%, n = 8) were among the most common comorbid diagnoses.

Instruments

Child Measures of Psychopathology

Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS).[32]: The CY-BOCS is a 10-item clinician-administered instrument assessing OCD obsessions (scores ranging from 0-20), compulsions (scores ranging from 0-20), and total (scores ranging from 0-40) symptom severity in youths. The scale demonstrates good psychometric properties.[32] To increase specificity with regard to facets of symptom severity that may predict parental accommodation, the CY-BOCS obsessions and compulsions subscale scores were used rather than the CY-BOCS-total score.

Multidimensional Anxiety Scale for Children (MASC).[33]: The MASC is a 39-item self-report scale assessing anxiety in children and demonstrates good psychometric properties[33,34].

Child Depression Inventory (CDI).[35]: The CDI is a 27-item self-report scale assessing depression in children and demonstrates good psychometric properties[35].

Conners' Parents Rating Scale-Revised: Long (CPRS-R: L).[36]: The CPRS-R: L is an 80-item parent-report measure assessing domains of relevance to ADHD and demonstrates good psychometric properties.[36] For the purposes of the current study, to provide an index of child oppositional behavior, only the Oppositional subscale was utilized.

Obsessive-Compulsive Inventory-Child Version (OCI-CV).[37]: The OCI-CV is a 21-item child-report measure designed to assess symptoms dimensions of OCD. The scale demonstrates good psychometric properties.[37] In lieu of individual symptom-level data from the CY-BOCS, the ordering, washing, checking, and hoarding subscales of the OCI-CV were utilized for the purposes of the present study because these subscales mirror symptoms profiles utilized by Stewart and colleagues[26] in examining accommodation among the families of adults with OCD. Also, to provide a better comparison with prior adult research (e.g., report of affected individuals),[38] the child-report version of the OCI was used, rather than parent-report.

Parent Measures of Psychopathology/Behavior

Family Accommodation Scale-Parent-Report (FAS-PR)[11]: The FAS-PR is a 12-item parent-report scale assessing parental accommodation of their child's OCD-related rituals. Recent evidence suggests that a 12- rather than 13-item version of the FAS-PR demonstrates a stable factor structure, excellent internal consistency (α = 0.90), good convergent validity, and adequate discriminant validity.[27] In addition, the scale consists of two separate yet related (r = 0.55) subscales assessing the degree to which caregivers (1) are involved in their child's OCD symptoms (i.e., Involvement in Compulsions; α = 0.80) and (2) avoid certain

situations or triggers for their child's OCD-related rituals (i.e., Avoidance of Triggers α = 0.80).

Brief Symptom Inventory (BSI)[39]: The BSI is a 53-item self-report measure assessing parental psychiatric status (within the past week) and demonstrates good psychometric properties.[39] For the current study, we utilized only the Anxiety subscale of the BSI to provide a measure of (1) current anxiety symptomatology (to complement trait anxiety, described below) and (2) parental psychopathology that may be relevant to predicting accommodation.

Beck Depression Inventory (BDI)[40]: The BDI is a 21-item self-report scale assessing symptoms of depression and demonstrates good psychometric properties[41].

Yale-Brown Obsessive-Compulsive Scale-Self Report (YBOCS-SR): The YBOCS-SR is a parent self-report instrument modeled after a clinician-administered instrument, the Y-BOCS. The original version of the Y-BOCS demonstrates good psychometric properties.[42,43] For the present study, the YBOCS-SR demonstrated excellent internal consistency (α = 0.93).

State-Trait Anxiety Inventory-Trait (STAI-Trait).[44]: The STAI is a 40-item self-report instrument assessing symptoms of anxiety *at the present time* (20-tem, State) and generally (20-item, Trait). The original STAI demonstrates good psychometric properties.[44] In the larger study (i.e., POTS), only the STAI-Trait was administered. For this study, the STAI-Trait demonstrated excellent internal consistency (α = 0.90).

Procedure—Entrance into the larger study[29] took an average of 2 to 3 weeks and proceeded through 4 entry gates: (1) telephone screening, (2) review of youth- and parent-report measures, (3) consent and assessment of all inclusion and exclusion criteria and (4) baseline assessment and randomization to treatment condition. All measures reported herein and subsequently utilized in data analysis were obtained at the baseline assessment.

Data Analytic Plan: Recent empirical evidence suggests that accommodation may consist of at least two related facets.[27] Therefore, the current study utilized three, empirically-derived dependent (outcome) measures of accommodation; (1) Total Accommodation (FAS-PR total score), (2) Involvement in Compulsions, and (3) Family Avoidance. To account for possible missing data (i.e., one-item not completed), Total and subscale scores were calculated by obtaining the mean of available scores. This value was then used as the outcome measure for subsequent regression analyses.

Based upon prior OCD research and theoretical considerations, 16 variables were chosen as possible candidate predictors of accommodation. These variables fell within the domains of either (1) child- or (2) parent-level variables. Child-level variables included age, gender, CDI total score, MASC total T-score, CY-BOCS obsession and compulsion total scores, CPRS-Oppositional subscale T-score, and OCI-CV symptom dimension scores (i.e., Checking, Hoarding, Ordering, and Washing). Parent-level variables included BDI total score, YBOCS-SR obsession and compulsions total scores, STAI-Trait total score, and BSI-Anxiety total score. Participants with more than 20% missing data for any variable were excluded from that variable's analyses. For example, a participant with missing CDI total score data but no other missing data was excluded only from analyses involving the CDI. The amount of missing data (e.g., >20%) were calculated for each variable. Results are as follows: CY-BOCS (0%), MASC (6.3%), CDI (3.1%), CPRS: Oppositional scale (9.4%), OCI-CV (5.2%), BDI (1%), YBOCS-SR (7.3%), BSI: Anxiety (6.3%), and STAI-Trait (6.3%).

Before developing final regression models, distribution of the study's outcome measures was examined. Preliminary analysis suggested that only Avoidance of Triggers scores deviated from assumptions of normality (i.e., positively skewed). Therefore, a logarithmic (log) transformation was conducted resulting in normally distributed log transformed Avoidance of Triggers (hereafter referred to as Avoidance of Triggers) scores. Next, the relationships between the aforementioned variables and dependent measures were examined using parametric tests to inform model building. Variables were evaluated using Pearson (i.e., continuous) and point-biserial (i.e., dichotomous) correlation coefficients. In turn, variables were evaluated to test for possible collinearity.

Linear multiple regression analyses were employed to develop this study's primary regression models ($N = 3$; Total Accommodation, Involvement in Compulsions, and Avoidance of Triggers). Identical procedures were used to determine each outcome measure's final regression model and were modeled after work conducted by Stewart and colleagues[38] examining family accommodation among adults with OCD. First, variables demonstrating alpha levels less than 0.1, based upon preliminary Pearson and point-biserial correlations (see Table 1), were selected as candidate predictors. We removed potential moderators by eliminating potentially redundant variables, which we defined as those within the same conceptual grouping (e.g., obsessions-compulsions, anxiety-depression) with baseline intercorrelations of >0.50. Selection of the appropriate variable from these groupings was based upon theoretical considerations and/or previous research findings. For example, we chose to include CY-BOCS: Compulsions rather than Obsessions because we anticipated that parents would be more likely to accommodate overt symptoms of the disorder. Correlational analyses provide some support for this hypothesis. All unique candidate predictors were entered into the regression model. Only those variables achieving an alpha of less than or equal to 0.05 were included in the final regression model. Those variables not obtaining this threshold were removed and the regression analysis was rerun to reveal the final regression model. After building the models, distribution of residuals was examined to test for assumption of normality. Residuals were plotted against predicted values to test for equality of variance assumptions, and *Cook's D* was utilized to identify potential outliers.

Results

Descriptive Data

Table 1 provides descriptive data for children and their parents. Children presented with moderate to severe symptoms of OCD and reported symptoms of anxiety and depression falling within the normative range.[35,45] Per parent-report, children demonstrated slightly to mildly atypical oppositional behavior.[36] On parent self-report, minimal symptoms of OCD, anxiety (current and trait), and depression were noted. In addition, data suggested moderate to severe parental accommodation assessed both as unitary (FAS-PR total score) and binary (Involvement in Compulsions, Avoidance of Triggers) constructs.

Frequency and descriptive data collected via the FAS-PR (see Table 2) indicate that 99% ($n = 95$) of parents reported engaging in at least one accommodating behavior to some extent and 77.1% ($n = 74$) reported engaging in at least one of these behaviors daily. A significant proportion of parents reported reassuring their child (63.5%), participating in their child's OCD rituals (32.3%), or assisting their child in avoiding anxiety-provoking situations (33.3%) on a daily basis. Interestingly, despite the frequency of some form of accommodation, a substantial proportion of parents reported that they never avoided going places (57.3%) or modified leisure activities (52.1%) because of their child's symptoms.

Predictive Models of Parental Accommodation

Total Accommodation—Preliminary analyses revealed 11 (of 16) possible predictors of Total Accommodation. Due to intercorrelations (see *Data Analytic Plan*), CY-BOCS: Obsessions, CDI total score, BDI total score, and STAI-trait were removed as possible predictors (see Table 3). The remaining child- and parent-level variables ($n = 7$) were entered into a regression analysis to reveal two statistically significant predictors (CY-BOCS: Compulsion total, $p = 0.04$; BSI-Anxiety, p = 05). To further test whether these variables remained significant predictors of Total Accommodation, they were re-entered into a subsequent regression analysis. Each variable remained a significant predictor ($p = .010$, $p = 0.002$ and $p = 0.004$, respectively).

The final regression model ($F = 12.23$, $p < 0.001$) accounted for 23.0% of the variance in Total Accommodation scores. The model's adjusted R^2 (taking into account number of variables in the model) was 21.2%. Statistical tests revealed no violations of normality or equality of variance assumptions, and Cooks D suggested the absence of influential outliers.

Involvement in Compulsions—Analyses revealed 9 possible predictors of Involvement in Compulsions. Due to intercorrelations, CY-BOCS: Obsessions and BDI total score were removed. The remaining variables ($n = 7$) were entered into the regression analysis and revealed two statistically significant predictors (CPSR: Oppositional subscale, $p = 0.02$; OCI-Washing, $p = 0.04$). These variables were re-entered into the regression model and were found to remain significant predictors ($p \leq 0.001$ and $p = 0.004$, respectively) of Involvement in Compulsions.

The final regression model ($F = 11.66$, $p < 0.001$) accounted for 23.2% of the variance in Involvement in Compulsions scores. The model's adjusted R^2 was 21.3%. Statistical tests revealed no violations of normality or equality of variance assumptions, and Cooks D suggested the absence of influential outliers.

Avoidance of Triggers—Analyses revealed 8 possible predictors of Avoidance of Triggers. Due to intercorrelations, BDI total score was removed. The remaining variables ($n = 7$) were entered into the regression equation and revealed two predictors (CY-BOCS: Compulsion total, $p = 0.04$; BSI-Anxiety, $p = 0.05$). Upon entering both variables into the final regression, each remained a significant predictor ($p = 0.11$ and 0.10, respectively).

The final regression model ($F = 8.61$, $p < 0.001$) accounted for 17.0% of the variance in Avoidance of Triggers scores. The model's adjusted R^2 was 15.0%. Statistical tests revealed no violations of normality or equality of variance assumptions, and Cooks D suggested the absence of influential outliers.

Discussion

This is the first study to examine possible child- and parent-level predictors of various facets of parental accommodation (i.e., Total Accommodation, Involvement in Compulsions, Avoidance of Triggers) utilizing demographic, symptom (i.e., obsessions, compulsions) and phenomenological (i.e., symptom dimension) data among children with OCD. The findings support prior research suggesting that accommodation is a ubiquitous phenomenon among these families.[18,20,28] These data also suggest that both child- and parent-level variables including compulsion severity, washing/cleaning symptoms, oppositional behavior, and parental anxiety work jointly to provide significant predictive models of accommodation.

Compulsion severity (CY-BOCS: Compulsion) and parental anxiety (BSI-Anxiety) accounted for approximately 23% of the variance in predicting Total Accommodation.

These findings demonstrate both similarities (i.e., parental psychopathology and OCD symptoms as predictors of accommodation) and differences (i.e., specific role of washing/contamination symptoms and child oppositional behavior as predictors of parental involvement in compulsions) to the one previous study to examine predictors of accommodation in the families of children with OCD.[20] Differences in methodology may account for discrepancies between these studies. The current study utilized a larger sample size and validated version of the FAS-PR utilizing empirically-derived subscales. Only one of the two variables (i.e., compulsion severity) predicting Total Accommodation is closely related to predictors of accommodation found among the families of adults with OCD.[38] Perhaps particular symptom dimensions may be of less importance in predicting Total Accommodation during childhood, while symptom severity is relevant across the lifespan. It should be noted though that washing symptoms were predictive of Involvement in Compulsions. Future research should examine possible developmental differences in models of accommodation among children, adolescents, and adults with OCD.

The current study's findings in relation to the influence of parental anxiety on Total Accommodation is particularly interesting as it suggests that addressing accommodation may become increasingly important as a parent's own level of anxiety increases. Clinically, this makes sense: anxious parents may be more resistant to the principles underlying CBT and, more specifically, exposure with response prevention (ERP). ERP tasks are designed intentionally to increase a child's anxiety. This elevation in the child's anxiety level may lead to an increase in parental anxiety (e.g., seeing their child in distress), and thus compromise treatment compliance and/or adherence. This finding is particularly intriguing in light of preliminary empirical evidence suggesting that changes in parental accommodation demonstrate a positive impact on treatment outcome utilizing CBT for childhood OCD.[28] Because these authors' used an unvalidated version of the FAS-PR, replication of their findings is warranted. However, the findings described herein may suggest that clinicians and researchers should examine the development of individualized (modular) interventions for children whose parent's present with elevated anxiety symptoms. For example, researchers may wish to examine the utility of a brief, structured intervention designed to manage a parent's level of anxiety (e.g., perhaps in response to their child's reaction to exposure-based assignments) and/or during the treatment process. In turn, it will be important to examine potential symptom-level cutoffs that best predict parental accommodation and, in turn, impact treatment outcome.

It is also important to understand the factors that exert influence on separate yet related facets to accommodation. For example, compulsive severity and parental symptoms of anxiety accounted for approximately 17% of the variance in Avoidance of Triggers. These results are nearly identical to and likely provided the greatest influence on Total Accommodation. Conversely, parent-report of their child's oppositional behavior (e.g., CPRS: Oppositional) and OCD-related washing/contamination symptoms were distinct and significant predictors of Involvement in Compulsions. It would be interesting to re-examine the impact of not only Total Accommodation, but also Involvement in Compulsions and Awareness of Triggers on treatment outcome in pediatric OCD. It is possible that these domains may be differentially related to treatment outcome. If this were the case, findings from the current study suggest that different adjuncts to treatment may be necessary (e.g., addressing a child's oppositional behavior vs. addressing a parent's increased anxiety). Clearly, additional research is warranted.

Several limitations of the current study must be noted. First, this study did not examine whether changes in Involvement in Compulsions and/or Avoidance of Triggers impacted treatment outcome. As a result, it is unclear whether one of these two related facets to accommodation is most germane to improving treatment efficacy, or whether a more unitary

approach to addressing accommodation would prove more useful (i.e., Total Accommodation). Second, the models described herein account for a relatively small amount (e.g., 23%) of the variance in parental accommodation. Conversely, the model developed by Peris and colleagues[20] explained 43% of the variance. Methodological differences (e.g., smaller sample size, use of a 13-item rather than 12-item FAS-PR, using CY-BOCS/YBOCS Total scores rather than individual subscales) between these two studies may account for some of these discrepancies. In turn, the models described above leave room for the likelihood that other candidate predictors not assessed here may also be important for understanding factors impacting accommodation. For example, recent evidence suggests that there may in fact be a link between anxious parenting behaviors and specific candidate genes.[46,47] Future research should examine the possible relationship between genes and parenting behavior, as this may aid in improving therapeutic interventions. Finally, the current study employed a child-report measure of OCD symptoms dimensions (i.e., OCI-CV) compared to a symptom checklist used in many other studies. Therefore, caution should be used in interpreting results related to particular symptom dimensions and their effect on various facets of accommodation.

Empirical evidence suggests that decreased parental accommodation is associated with better CBT outcomes among children with OCD,[28] although the directionality of these effects has yet to be established. In conjunction with this study's findings, these results are supportive of the more formal assessment of parental accommodation and suggest that clinicians and researchers should be aware of the impact that specific child-and parent-level variables have on parental accommodation. More broadly, these findings also point to the potential importance of assessing both a parent's involvement in their child's OCD-related rituals and their avoidance of triggers for OCD. This latter point is particularly interesting as the current gold standard for the assessment of OCD symptom severity in children, the CY-BOCS, does not include either domain in the calculation of symptom severity. Future research may wish to examine whether the failure to assess these domains inadvertently results in misleadingly lower scores on the CY-BOCS. Research of this nature may help to elucidate the importance of these domains/subscales in the assessment and treatment of children with OCD. Ultimately, the line of research will provide clinical scientists with a better understanding of accommodation, childhood OCD, and factors that may influence the pathogenesis and treatment of this debilitating disorder.

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References

1. Valleni-Basile LA, Garrison CZ, Jackson KL, et al. Frequency of obsessive-compulsive disorder in a community sample of young adolescents. Journal American Academy of Child & Adolescent Psychiatry. 1995; 34(2):128–129.
2. Zohar AH. The epidemiology of obsessive-compulsive disorder in children and adolescents. Child and Adolescent Psychiatric Clinics of North America. 1999; 8(3):445–461. [PubMed: 10442225]
3. Adams G, Waas G, March J, Smith M. Obsessive-compulsive disorder in children and adolescents: The role of the school psychologist in identification, assessment, and treatment. School Psychology Quarterly. 1994; 9:274–294.

4. Cooper M. Obsessive-compulsive disorder: effects on family members. Am J Orthopsychiatry. Apr; 1996 66(2):296–304. [PubMed: 8860758]
5. Leonard HL, Lenane M, Swedo SE. Obsessive-compulsive disorder. Child and Adolescent Psychiatric Clinics of North America. 1993; 2(4):655–665.
6. Toro J, Cervera M, Osejo E, Salamero M. Obsessive-compulsive disorder in childhood and adolescence: a clinical study. Journal of Child Psychology and Psychiatry. 1992; 33(6):1025–1037. [PubMed: 1400685]
7. Geller DA, Biederman J, Griffin S, Jones J, Lefkowitz TR. Comorbidity of juvenile obsessive-compulsive disorder with disruptive behavior disorders. Journal of the American Academy of Child and Adolescent Psychiatry. 1996; 35(12):1637–1646. [PubMed: 8973071]
8. March J. Cognitive-behavioral psychotherapy for children and adolescents with ocd: A review and recommendations for treatment. Journal of the American Academy of Child and Adolescent Psychiatry. 1995; 34(1):7–18. [PubMed: 7860461]
9. Amir N, Freshman M, Foa E. Family distress and involvement in relatives of obsessive-compulsive disorder patients. Journal of Anxiety Disorders. 2000; 14(3):209–217. [PubMed: 10868980]
10. Barrett P, Shortt A, Healy L. Do parent and child behaviours differentiate families whose children have obsessive-compulsive disorder from other clinic and non-clinic families? Journal of Child Psychology and Psychiatry and Allied Disciplines. 2002; 43(5):597–607.
11. Calvocoressi L, Lweis B, Harris M, et al. Family accommodation in obsessive-compulsive disorder. American Journal of Psychiatry. 1995; 152:441–443. [PubMed: 7864273]
12. Calvocoressi L, Mazure C, Kasl SV, et al. Family accommodation of obsessive-compulsive symptoms. Journal of Nervous and Mental Disease. 1999; 187(10):636–642. [PubMed: 10535658]
13. Chambless D, Steketee G. Expressed emotion and behavior therapy outcome: A prospective study with obsessive-compulsive and agoraphobic outpatients. Journal of Consulting and Clinical Psychology. 1999; 67(5):658–665. [PubMed: 10535232]
14. Derisley J, Libby S, Clark S, Reynolds S. Mental health, coping and family-functioning in parents of young people with obsessive-compulsive disorder and with anxiety disorders. British Journal of Psychiatry. 2005; 44:439–444.
15. Hibbs ED, Hamburger S, Lenane M, et al. Determinants of expressed emotion in families of disturbed and normal children. Journal of Child Psychology and Psychiatry. 1991; 32(5):757–770. [PubMed: 1918226]
16. Insel TR, Hoover C, Murphy DL. Parents of patients with obsessive-compulsive disorder. Psychological Methods. 1983; 13:807–811.
17. Leonard HL, Swedo SE, Lenane M, et al. A 2- to 7-year follow-up study of 54 obsessive-compulsive children and adolescents. Archives General Psychiatry. 1993; 50:429–439.
18. Storch EA, Geffken GR, Merlo LJ, et al. Family accommodation in peditric obsessive-compulsive disorder. Journal of Clinical Child and Adolescent Psychology. 2007; 36(2):207–216. [PubMed: 17484693]
19. Valleni-Basile LA, Garrison CZ, Jackson K. Family and psychosocial predictors of obsessive compulsive disorder in a community sample of young adolescents. Journal of Child and Family Studies. 1995; 4(2):193–206.
20. Peris TS, Bergman RL, Langley A, Chang S, McCracken JT, Piacentini J. Correlates of Accommodation of Pediatric Obsessive-Compulsive Disorder: Parent, Child, and Family Characteristics. J Am Acad Child Adolesc Psychiatry. Aug 21.2008
21. Ehiobuche I. Obsessive-compulsive neurosis in relation to parental child-rearing patterns amongst the Greek, Italian, and Anglo-Australian subjects. Acta Psychiatr Scand Suppl. 1988; 344:115–120. [PubMed: 3227978]
22. Merkel WT, Pollard CA, Wiener RL, Staebler CR. Perceived parental characteristics of patients with obsessive compulsive disorder, depression, and panic disorder. Child Psychiatry Hum Dev. Fall;1993 24(1):49–57. [PubMed: 8404245]
23. Steketee G. Disability and family burden in obsessive-compulsive disorder. Canada Journal Psychiatry. 1997; 42:919–928.

24. Mariaskin, M.; Curry, JF.; March, J.; Franklin, M.; Foa, E. Association for Behavioral and Cognitive Therapies. Philadelphia, PA: 2007. Team P-IR Family accommodation and emotion socialization in childhood obsessive-compulsive disorder.
25. Leonard HL, Lenane MC, Swedo SE, Rettew DC, Gershon ES, Rapoport JL. Tics and Tourette's Disorder: A 2- to 7-Year Follow Up of 54 Obsessive-Compulsive Children. American Journal of Psychiatry. 1992; 149(9):1244–1251. [PubMed: 1503140]
26. Stewart SE, Beresin C, Haddad S, Stack DE, Fama J, Jenike M. Predictors of accommodation in obsessive-compulsive disorder. Annals of Clinical Psychiatry. 2008; 20(2):65–70. [PubMed: 18568577]
27. Flessner CA, Sapyta J, Freeman JB, et al. Examining the Factor Structure and Psychometric Properties of The Family Accommodation Scale-Parent Report (FAS-PR). J Psychopathology Beh Assessment. 2011; 33:38–46.
28. Merlo LJ, Lehmkuhl HD, Geffken GR, Storch EA. Decreased family accommodation associated with improved therapy outcome in pediatric obsessive-compulsive disorder. J Consult Clin Psychol. Apr; 2009 77(2):355–360. [PubMed: 19309195]
29. Pediatric OCD Treatment Study Team [POTS]. Cognitive-behavior therapy, sertraline, and their combination with children and adolescents with Obsessive-Compulsive Disorder: The Pediatric OCD Treatment Study (POTS) randomized controlled trial. JAMA. 2004; 292(16):1969–1976. [PubMed: 15507582]
30. Franklin M, Foa E, March JS. The Pediatric Obsessive-Compulsive Disorder Treatment Study: Rationale, Design, and Methods. Journal of Child and Adolescent Psychopharmacology. 2003; 13(supplement 1):39–51.
31. Silverman, WK.; Albano, AM. Anxiety disorders interview schedule for DSM-IV. San Antonio: The Psychological Corporation; 1996.
32. Scahill L, Riddle MA, McSwiggan-Hardin M, et al. Children's Yale-Brown Obsessive-Compulsive Scale: Reliability and validity. Journal of the American Academy of Child and Adolescent Psychiatry. 1997; 36:844–852. [PubMed: 9183141]
33. March, JS. Multidimensional anxiety scale for children. North Tonawanda, NY: Multi-health systems; 1998.
34. Wood JJ, Piacentini JC, Bergman RL, McCracken J, Barrios V. Concurrent validity of the anxiety disorders section of the anxiety disorders interview schedule for DSM-IV: Child and parent versions. Journal of Clinical Child and Adolescent Psychology. 2002; 31:335–342. [PubMed: 12149971]
35. Kovacs, M. Children's Depression Inventory Manual. North Tonawanda, NY: Multi-Health Systems, Inc.; 1992.
36. Conners CK, Sitarenios G, Parker J, Epstein J. The revised Conners' Parent Rating Scale: Factor Structure, reliability, and criterion validity. Journal of Abnormal Child Psychology. 1998; 26(4): 257–268. [PubMed: 9700518]
37. Foa E, Kozak M, Salkovskis PM, Coles ME, Amir N. The validation of a new obsessive compulsive disorder scale: The Obsessive-Compulsive Inventory. Psychological Assessment. 1998; 10:206–214.
38. Stewart SE, Beresin C, Haddad S, Egan Stack D, Fama J, Jenike M. Predictors of family accommodation in obsessive-compulsive disorder. Ann Clin Psychiatry. Apr-Jun; 2008 20(2):65–70. [PubMed: 18568577]
39. Derogatis L, Melisaratos N. The Brief Symptom Inventory: An Introductory Report. Psychological Medicine. 1983; 13(3):595–605. [PubMed: 6622612]
40. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Archives of general psychiatry. Jun.1961 4:561–571. [PubMed: 13688369]
41. Beck A, Steer R, Garbin M. Psychometric properties of the beck depression inventory: Twenty five years of evaluation. Clinical Psychology Review. 1988; 8:77–100.
42. Goodman WK, Price LH, Rasmussen SA, et al. Yale-Brown obsessive compulsive scale. I. Development, use, and reliability. Archives of General Psychiatry. 1989; 46:1007–1016.
43. Goodman WK, Price LH, Rasmussen SA, et al. Yale-Brown Obsessive-Compulsive Scale. II. Validity. Archives of General Psychiatry. 1989; 46(11):1012–1016. [PubMed: 2510699]

44. Spielberger, CD.; Gorsuch, RL.; Lushene, R.; Vagg, PR.; Jacobs, GA. Manual for the State Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press; 1983.

45. March, J. Multidimensional Anxiety Scale for Children. North Tonawanda, NY: Multi-Health Systems Inc.; 1997.

46. Bakermans-Kranenburg MJ, van Ijzendoorn MH. Oxytocin receptor (OXTR) and serotonin transporter (5-HTT) genes associated with observed parenting. Soc Cogn Affect Neurosci. Jun; 2008 3(2):128–134. [PubMed: 19015103]

47. Van Ijzendoorn MH, Bakermans-Kranenburg MJ, Mesman J. Dopamine system genes associated with parenting in the context of daily hassles. Genes Brain Behav. 2008; 7:403–410. [PubMed: 17973921]

Table 1
Descriptive Statistics for Current Sample

Measure	Mean (SD)
Child Measures of Psychopathology	
CY-BOCS total	24.5 (4.2)
Obsession total score	11.8 (2.4)
Compulsion total score	12.7 (2.2)
MASC total (T-score)	53.9 (12.4)
CDI total score[a]	9.6 (7.50)
CPRS: Oppositional subscale (T-score)	60.4 (13.9)
OCI-CV: Checking Frequency[a]	2.2 (1.7)
OCI-CV: Hoarding Frequency[a]	2.1 (2.0)
OCI-CV: Ordering Frequency[a]	2.3 (1.9)
OCI-CV: Washing Frequency[a]	2.43 (2.1)
Parent Measures of Psychopathology	
FAS total score[a]	2.6 (0.8)
Involvement in Compulsions[a]	3.1 (0.9)
Avoidance of Triggers (log transformed)[a]	2.1 (0.9)
BDI total score[a]	10.1 (9.2)
YBOCS-SR total score	5.4 (6.7)
Obsession total score	2.9 (3.6)
Compulsion total score	2.5 (3.6)
BSI-Anxiety[a]	0.6 (0.7)
STAI-Trait	43.6 (9.8)

Note: BDI=Beck Depression Inventory; BSI=Brief Symptom Inventory; CDI=Child Depression Inventory; CPRS=Conners' Parent Rating Scale; CY-BOCS=Children'sYale-Brown Obsessive Compulsive Scale; FAS=Family Accommodation Scale; MASC=Multidimensional Scale for Children; OCI-CV=Obsessive Compulsive Inventory-Child Version; STAI=State Trait Anxiety Inventory YBOCS-SR=Yale Brown Obsessive Compulsive Scale-Self Report;

[a]indicates raw score means are presented;

Table 2

Frequency and Descriptive Statistics for Family Accommodation Scale Individual Items

Item	Never (1)	1-3 times/month/Mild (2)	1 or 2 times/week/Moderate (3)	3-6 times/week/Severe (4)	Daily/Extreme (5)	M (SD)
Involvement in Compulsions subscale						
1. How often did you reassure the patient?	2 (2.1%)	6 (6.3%)	13 (13.5%)	14 (14.6%)	61 (63.5%)	4.31 (1.06)
2. How often did you participate in behaviors related to the patient's compulsions?	22 (22.9%)	12 (12.5%)	15 (15.6%)	16 (16.7%)	31 (32.3)%	3.23 (1.57)
3. How often did you provide items for the patient's compulsions?	42 (43.8%)	12 (12.5%)	14 (14.6%)	6 (6.3%)	21 (21.9%)	2.49 (1.62)
4. Has the patient become distressed/anxious when you have not provided assistance?	12 (12.5%)	22 (22.9%)	30 (31.3%)	16 (16.7%)	15 (15.6%)	3.00 (1.25)
5. Has the patient become angry/abusive when you have not provided assistance?	34 (35.4%)	16 (16.7%)	23 (24.0%)	13 (13.5%)	10 (10.4%)	2.47 (1.37)
6. Has the patient spent more time completing rituals when you have not provided assistance?	39 (40.6%)	17 (17.7%)	21 (21.9%)	15 (15.6%)	4 (4.2%)	2.25 (1.26)
Avoidance of Triggers subscale						
1. How often did you assist the patient in avoiding things that might make him/her anxious?	14 (14.6%)	13 (13.5%)	19 (19.8%)	17 (17.7%)	32 (33.3%)	3.42 (1.45)
2. Have you avoided doing things, going places, or being with people because of the patient's OCD?	55 (57.3%)	18 (18.8%)	14 (14.6%)	2 (2.1%)	7 (7.3%)	1.83 (1.20)
3.Have you modified your family routine because of the patient's symptoms?	30 (31.3%)	28 (29.2%)	25 (26.0%)	9 (9.4%)	4 (4.2%)	2.26 (1.13)
4. Have you had to do some things for the family that are usually the patient's responsibility?	38 (39.6%)	26 (27.1%)	22 (22.9%)	5 (5.2%)	4 (4.2%)	2.06 (1.11)
5. Have you modified your work schedule because of the patient's needs?	45 (46.9%)	23 (24.0%)	19 (19.8%)	6 (6.3%)	3 (3.1%)	1.95 (1.10)
6. Have you modified your leisure activities because of the patient's needs?	50 (52.1%)	23 (24.0%)	14 (14.6%)	4 (4.2%)	5 (5.2%)	1.86 (1.14)

Note: OCD=Obsessive-Compulsive Disorder

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Table 3
Pearson correlation coefficients for Candidate Predictor Variables

	FAS Total	Involvement in Compulsions	Avoidance of Triggers
Child-Level Variables			
CY-BOCS: Obsession total	0.24; $p = 0.023$	0.24; $p = 0.018$	0.12; $p = 0.261$
CY-BOCS: Compulsion total	**0.36; $p \leq 0.001$**	**0.32; $p = 0.002$**	**0.29; $p = 0.004$**
MASC total (T-score)	**0.24; $p = 0.026$**	**0.24; $p = 0.063$**	**0.20; $p = 0.064$**
CDI total	0.21; $p = 0.051$	0.20; $p = 0.060$	0.17; $p = 0.108$
CPSR: Oppositional subscale	**0.36; $p = 0.001$**	**0.39; $p \leq 0.001$**	**0.20; $p = 0.074$**
OCI-CV: Checking	0.16; $p = 0.150$	**0.21; $p = 0.052$**	0.09; $p = 0.427$
OCI-CV: Hoarding	-0.02; $p = 0.839$	-0.07; $p = 0.543$	0.05; $p = 0.640$
OCI-CV: Ordering	**0.24; $p = 0.025$**	**0.22; $p = 0.037$**	**0.24; $p = 0.023$**
OCI-CV: Washing	**0.34; $p = 0.001$**	**0.34; $p = 0.001$**	**0.24; $p = 0.025$**
Age	-0.12; $p = 0.270$	-0.16; $p = 0.131$	-0.09; $p = 0.413$
Gender	0.16; $p = 0.122$	0.13; $p = 0.213$	**0.19; $p = 0.07$**
Parent-Level Variables			
BDI total score	0.24; $p = 0.025$	0.14; $p = 0.206$	0.21; $p = 0.048$
YBOCS-SR: Obsession total	0.16; $p = 0.146$	0.12; $p = 0.286$	0.12; $p = 0.260$
YBOCS-SR: Compulsion total	**0.21; $p = 0.050$**	0.8; $p = 0.103$	0.18; $p = 0.100$
BSI-Anxiety	**0.37; p=0.001**	**0.25; p=0.019**	**0.32; p=0.002**
STAI-Trait	0.19; p=0.075	0.15; p=0.162	0.15; p=0.155

Note: Bolded items indicate that the variable was placed into the initial regression analysis. BDI=Beck Depression Inventory; BSI=Brief Symptom; CDI=Child Depression Inventory; CPRS=Conners' Parent Rating Scale; CY-BOCS=Children's Yale-Brown Obsessive Compulsive Scale; FAS=Family Accommodation Scale; MASC=Multidimensional Scale for Children; OCI-CV=Obsessive Compulsive Inventory-Child Version; STAI=State Trait Anxiety Inventory; YBOCS-SR=Yale Brown Obsessive Compulsive Scale-Self Report; Inventory;