Psychiatry Research 245 (2016) 186–193

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Predictors of treatment response to group cognitive behavioural therapy for pediatric obsessive-compulsive disorder

Cassie H. Lavell [a], Lara J. Farrell [a,*], Allison M. Waters [b], Jacinda Cadman [a]

[a] Griffith Health Institute, Griffith University, Gold Coast Campus, Gold Coast, Australia
[b] Griffith Health Institute, Griffith University, Mount Gravatt Campus, Brisbane, Australia

ARTICLE INFO

Article history:
Received 6 November 2015
Received in revised form
11 July 2016
Accepted 8 August 2016
Available online 9 August 2016

Keywords:
Obsessive-compulsive disorder
Cognitive-behavioural therapy
Family accommodation
Parental rearing
Anxiety
Depression

ABSTRACT

Obsessive-compulsive disorder (OCD) is a debilitating mental health disorder, occurring in 1–2% of children and adolescents. Current evidence-based treatments produce promising rates of remission; however, many children and youth do not fully remit from symptoms. The current study explored predictors of treatment response to a group cognitive-behavioural treatment program for pediatric OCD ($N=43$). Higher levels of child depression and parental rejection at baseline were found to be associated with higher OCD symptoms at post-treatment. Family accommodation was found to be associated with OCD symptom severity at 12-months follow-up. Further, children who were classified as treatment responders at 12-months follow-up had fewer depressive symptoms at baseline than non-responders at 12-months. Results indicate that child depression and adverse family factors may contribute to poorer treatment response for children and youth with OCD. This finding suggests current treatments should be refined for these young people in order to better suit their individual needs.

1. Introduction

Obsessive-compulsive disorder (OCD) is a debilitating mental health disorder, affecting approximately 1–2% of children and adolescents (Douglass et al., 1995; Valleni-Basile et al., 1995; Shaffer et al., 1996; Zohar, 1999). In children, OCD is associated with high rates of comorbidity (Farrell et al., 2012; Geller et al., 1996; Storch et al., 2008; Lewin et al., 2010; Rasmussen and Eisen, 1990), and frequently results in functional impairment across multiple domains, including school functioning, peer and family relationships, and daily household living (Toro et al., 1992; Piacentini et al., 2003; Allsopp and Verduyn, 1990; Storch et al., 2006; Cooper, 1996; Barrett et al., 2001). If left untreated, pediatric OCD can be unremitting, and in severe cases can lead to lifelong suffering (Stewart et al., 2004).

Current best-practice guidelines, outlined by the American Academy of Child and Adolescent Psychiatry (AACAP) Clinical Practice Parameters for OCD (Geller and March, 2012), recommend cognitive-behavioural therapy (CBT) as the first-line treatment for young people with mild to moderate OCD, and a combination of serotonergic medication (SSRI) and CBT for children with severe OCD. Results from randomised control trials (RCTs) provide support for the efficacy of CBT. In the largest RCT of youth with OCD to date ($N=112$, ages 7–17), the Pediatric OCD Treatment Study (Pediatric OCD Treatment Study Team, 2004) found that those who received CBT, either alone or with SRI medication (sertraline), had significant reductions in their symptoms after 12 weeks of treatment. Although CBT and sertraline did not differ significantly, CBT alone produced a larger effect size ($d=0.97$) than medication alone ($d=0.67$), and was associated with higher rates of remission (Pediatric OCD Treatment Study Team, 2004). Although the POTS study found combined CBT and sertraline was superior to CBT alone, it should be noted that this study has been found to be limited by a site effect, and that more a recent study by Storch et al. (2013; N=47) found no evidence that combination sertraline with CBT is more effective than CBT alone. Further, meta-analyses of controlled trials for pediatric OCD consistently report large effect size estimates for CBT (Abramowitz et al., 2005; McGuire et al., 2015; Sánchez-Meca et al., 2014; Watson and Rees, 2008).

A small number of studies have also evaluated the effectiveness of group-CBT for pediatric OCD. When comparing group CBT and individual CBT in a sample of 77 youth, Barrett et al. (2004) found that both methods produced clinically significant reductions in symptoms, with no significant differences between conditions. Farrell et al., (2012) evaluated the effectiveness of a group-based CBT program for children and adolescents with OCD in an open clinical trial. The sample had a range of complex comorbid conditions, including pervasive developmental disorder (PDD),

* Correspondence to: School of Applied Psychology, Griffith Health Institute, Griffith University, Gold Coast Campus, QLD 4222, Australia.
E-mail address: l.farrell@griffith.edu.au (L.J. Farrell).

http://dx.doi.org/10.1016/j.psychres.2016.08.033
0165-1781/

attention-deficit hyperactivity disorder (ADHD), and depressive disorders. After the group-CBT program, there was a significant reduction in OCD symptoms (overall mean symptom reduction of 45%), with gains maintained at 6-months follow-up. In addition, 47% of the sample was classified as in remission at post-treatment, and 44% were in remission at 6-months follow-up. These remission rates were largely consistent with the rates of remission in studies of individual CBT (e.g., Pediatric OCD Treatment Study Team, 2004). In sum, these studies support the role of group-CBT as an effective alternative to individual treatment, and provide promise for the dissemination of evidence-based treatment, by increasing treatment accessibility for children and their families.

Although the literature demonstrates that CBT produces clinically significant reductions in OCD symptoms with large effect sizes, studies indicate that the majority of young people do not fully remit from symptoms after receiving CBT. In the Pediatric OCD Treatment Study Team (2004) randomized trial for example, as many as 50% of children and youth receiving combined SRI medication and CBT were considered partial responders, whereas 60% of those receiving CBT alone and 80% of those receiving serotonergic medication alone experienced only partial response to treatment. Therefore, knowledge of the predictors and moderators of treatment response is important for understanding which children will respond best to current treatments, and who will require more refined approaches. Several studies have found that baseline OCD severity is associated with poorer CBT treatment outcomes (Barrett et al., 2005; Garcia et al., 2010; Ginsburg et al., 2008; Piacentini et al., 2002). For example, Garcia et al. (2010) found that among 112 children and youth with OCD, those with higher baseline CYBOCS severity had a poorer response to CBT and SRI treatment than those with lower baseline symptom severity. Studies have also found that OCD-related functional impairment may be associated with poorer treatment responding. For example, Piacentini et al. (2002) found that school-based functional impairment was a predictor of poorer outcome in 42 youth, while Garcia et al. (2010) found that youth with higher parent-rated functional impairment had higher OCD severity scores post-treatment than those with lower functional impairment.

Comorbidity has consistently been demonstrated to be an important predictor of treatment response in children and youth with OCD. Research suggests that having one or more comorbid diagnoses is associated with poorer response to CBT (Storch et al., 2008), and that the number of comorbid conditions is negatively associated with treatment outcome (Farrell et al., 2012; Storch et al., 2008). Storch et al. (2008) found that youth with OCD who had comorbid externalizing disorders (attention-deficit hyperactivity disorder, conduct disorder, or oppositional defiance disorder) had poorer response to treatment than those without an externalizing disorder. Further, both externalizing disorders and depressive disorders were associated with lower treatment remission rates. Farrell et al. (2012) also found the rate of remission was significantly lower (25%) among children with comorbid OCD and ADHD than among children without an externalizing disorder (65%). In addition, research outcomes using data from the Pediatric OCD Treatment Study Team (2004) trial suggest children with comorbid OCD and tic disorders do not respond as well as those without a tic disorder to medication alone (March et al., 2007). Taken together, these studies highlight the importance of comorbidity in understanding how well a child will respond to current treatments for OCD.

There is also evidence to support the role of family factors, such as family accommodation, in predicting a young person's response to CBT. Family accommodation, referring to actions taken by family members to facilitate rituals or to assist with rituals, has been shown to be associated with poorer treatment response (Garcia et al., 2010; Merlo et al., 2009; Rudy et al., 2014). The role of other family variables in predicting treatment outcomes is less clear. Two studies (Bolton et al., 1995; Wever and Rey, 1997) found that family environment did not differentiate those who responded well to treatment and those who did not. In contrast, other studies found that family dysfunction (Barrett et al., 2005), family history of OCD (Garcia et al., 2010), and parental psychopathology (Leonard et al., 1993) predicted poorer treatment outcomes for youth with OCD. Evidently, there is a need for further research into the relationship between family variables and treatment outcome. To the authors' knowledge, parental rearing style is a factor yet to be explored in the pediatric OCD outcome literature. In adult OCD research, those with a diagnosis of OCD have been found to retrospectively perceive lower parental warmth, and higher parental control (i.e., overprotection) and rejection (i.e., unfair treatment and punishment, shaming, and blaming) compared to controls (Alonso et al., 2004; Lennertz et al., 2010). Parenting styles that are characterized by low warmth and high rejection and control have also been found among anxiety disordered child populations (Waters et al., 2013). Mothers' anxious rearing has also been found to be associated with anxiety symptoms in children (Waters et al., 2012). Further, in a study of children aged 8–14 by Barrett et al. (2002), parents of children with OCD (n=18) were less likely to engage in positive behavior during interactions with their child than parents of control children, anxious children, and children with externalizing problems. That is, they were observed to be less rewarding of their child's independence, used less positive problem solving, and were less confident in their child's ability (Barrett et al., 2002). Taken together, this research suggests dysfunctional parental rearing may be important in understanding the familial context of OCD. Hence, family variables, such as parental anxiety, warmth, control, and rejection, may also help us to understand why some children respond well to current treatments, and why others do not.

Based on previous research, the current study aims to investigate treatment response among children and adolescents with OCD who participated in group-based CBT program. Farrell et al. (2012) found this group program to be effective in reducing OCD symptoms in youth, and also described the important role of comorbidity in predicting treatment response to group CBT. The current study extends this research further, by looking at a broader range of predictors of response, and evaluating the long-term effectiveness of group-CBT for up to 12-months following treatment. This study is novel in its exploration of parental rearing practices as a predictor of treatment response. To the authors' knowledge, rearing styles such as rejection, control, and anxious rearing are yet to be explored in the pediatric OCD literature as potential predictors of outcome. However, based on the association between these variables and OCD, it is expected they will also be associated with variability in patient outcome. Specifically, it is hypothesised that:

1. Children who scored higher at pre-treatment on child baseline measures of depression, anxiety, OCD symptom severity, and OCD-related functional impairment will have poorer response to treatment (i.e., they will have greater OCD symptom severity at post-treatment, 6-month follow-up, and 12-month follow-up)
2. Children who scored higher on dysfunctional family baseline variables (family accommodation, parental control, parental rejection, and anxious rearing) will have greater OCD symptom severity at post-treatment, 6-month follow-up, and 12-month follow-up.

The final aim of this study is to explore the predictors of long-term treatment response and treatment remission at 12-month follow-up. Treatment responders are defined by at least 25% reduction in CYBOCS score, and treatment remitters are defined

by at least a 50% CYBOCS reduction, combined with a final CY-BOCS score of less than 14 (Storch et al., 2010). It is hypothesised:

3. Treatment responders at 12-months follow-up will by characterized by lower baseline depression, anxiety, OCD severity, OCD-related functional impairment, as well as adverse family baseline variables (family accommodation and parental rearing), than non-responders.
4. Treatment remitters at 12-months follow-up will also score lower on baseline depression, anxiety, OCD severity, OCD-related functional impairment, as well as adverse family baseline variables (family accommodation and parental rearing), than non-remitters.

2. Method

2.1. Participants

Participants in the study include 43 children and adolescents aged 7–17 years, who took part in a CBT treatment program offered at a university specialty clinic. The sample comprised of 30 males and 13 females, who had a mean age of 11.09 years ($SD=2.52$). They were referred general practitioners, allied health workers, school counsellors, or parents following community announcement of the program. There were a further four participants who were referred to the program, who were eligible for participation, but who withdrew prior to completion of assessment or prior to treatment commencing and were therefore excluded for these reasons. Participants were selected for the program on the basis of a fourth edition Diagnostic and Statistical Manual (DSM-IV; American Psychiatric Association, 2000) diagnosis of OCD. Diagnoses were made based on diagnostic interviews using the Anxiety Disorder Interview Schedule for Children (ADIS-P; Silverman and Albano, 1996). Eighty-six percent of the sample presented with a primary diagnosis of OCD, whereas the remainder ($n=6$) had OCD as either secondary or tertiary. The mean CYBOCS (Scahill et al., 1997) rating of the sample at assessment was 21.36 ($SD=6.63$). Therefore, the overall sample was within the upper range of moderate OCD severity. Sixty-seven percent of the sample were on an SRI medication prior to participating this study, and they did not alter their medication during this trial.

The sample consisted of high comorbidity, with 86% of participants having a secondary psychiatric diagnosis, and 74% presenting with a tertiary diagnosis. The sample consisted of comorbid tic disorder (40%), generalised anxiety disorder (GAD; 37%), separation anxiety disorder (SAD; 9%), social phobia (19%), specific phobia (26%), major depressive disorder (MDD; 7%), dysthymia (5%), attention-deficit/hyperactivity disorder (ADHD; 19%), oppositional defiance disorder (ODD; 2%), and pervasive developmental disorder (PDD; 35%). Exclusion criteria for the program included psychosis, intellectual disability, mental retardation, or currently receiving psychotherapy. There were no referrals to the project during this time that met exclusion criteria. Five participants dropped out prior to the post-treatment assessment, and nine participants were lost to 6-month and 12-month follow-ups.

2.2. Measures

2.2.1. Interview measures

2.2.1.1. The Anxiety Disorders Interview Schedule for Children—Parent (ADIS-P). The ADIS-P (Silverman and Albano, 1996) is a clinician-administered interview, developed to diagnose anxiety disorders in children. This interview was conducted face-to-face with parents to determine whether participants met criteria for an OCD diagnosis, and to confirm secondary and tertiary comorbid diagnoses, including other anxiety disorders, mood disorders (MDD and dysthymia), externalizing disorders (ADHD and ODD), and to screen for PDD. Participants received a diagnosis based on clinician judgment. This was determined using a Clinician Severity Rating (CSR), ranging from 0 to 8, with a score of 4 indicating a clinically significant diagnosis. The ADIS-P possesses good inter-rater and retest reliability. The interview has demonstrated good sensitivity to treatment effects in both childhood anxiety (Kendall, 1994; Barrett et al., 1996; Ollendick et al., 2009) and childhood OCD research (Albano et al., 1996; Waters et al., 2001; Barrett et al., 2004). Inter-rater reliability was conducted across 20% of the videotaped diagnostic interviews by an independent rater, with results indicating excellent reliability (primary diagnosis=1.0; secondary diagnosis=0.84; tertiary diagnosis=0.83).

2.2.1.2. Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS). The CY-BOCS (Scahill et al., 1997) is a clinician-rated semi-structured interview that assesses severity of OCD symptomatology. The CY-BOCS rates severity of obsessions and compulsions across five scales: (a) time occupied by symptoms, (b) interference, (c) distress, (d) resistance, and (e) degree of control over symptoms, and also provides a total severity score. The CY-BOCS shows reasonable reliability and validity, with good to excellent inter-rater agreement and high internal consistency for total score (Scahill et al., 1997). This interview was administered to children (including parents for the younger sample, 7–11 years) to assess overall OCD symptom severity.

2.2.1.3. National Institute of Mental Health Global Obsessive-Compulsive Scale (NIMH-GOCS). The NIMH-GOCS (Insel et al., 1983) is a clinician-rated device consists of a single item measuring global diagnostic severity on a scale from 1 (minimal symptoms, within normal range) to 15 (very severe). The GOCS also provides a scale of clinical global improvement (CGI), ranging from 1 (very much improved) through to 7 (very much worse), with 4 indicating no change. The GOCS has demonstrated good to excellent retest reliability (Kim et al., 1992, 1993), and adequate to good convergent validity with the CY-BOCS (see Taylor (1998)).

2.2.2. Self-report measures

2.2.2.1. Child OCD Impact Scale—Child Report (COIS-C). The impact of OCD on participants' psychosocial functioning will be assessed using the child and parent versions of the COIS (Piacentini and Jaffer, 1999; Piacentini et al., 2003). This measure assesses three domains of impairment (school, social, and family/home) using 20 items each domain. Participants rate items on a 4-point likert-scale. Total scores are calculated by summing school, social, and family subscales. Studies using the COIS-C have shown excellent internal consistencies for the three subscales and the total score ($rs=0.78–0.85$; Piacentini et al., 2001), and good convergent validity with the CY-BOCS ($r=0.46$; Piacentini et al., 2001). In the current study, Cronbach's α was 0.80.

2.2.2.2. Multidimensional Anxiety Scale for Children (MASC). The MASC (March, 1997) is a self-report measure assesses anxiety symptoms in children across a number of scales, including physical symptoms, harm avoidance, social anxiety and separation/panic. The MASC is comprised of 39 items assessing frequency of anxiety symptoms, with items being scored on a 4-point scale (0=not at all to 3=often). A total anxiety score is provided, ranging from 0 to 117. Research has indicated that the MASC has good internal reliability and convergent validity (March, 1997; March et al., 1997). In the current study, Cronbach's α was 0.89.

2.2.2.3. Children's Depression Inventory (CDI). Participants'

depressive symptoms will be measured using the CDI (Kovacs, 1992), which is comprised of 27 items, scored 0 (absence of symptom), 1 (mild symptom), or 2 (definite symptom), with higher scores indicating increasing severity and a total score that ranges from 0 to 54. The CDI has been widely used in clinical and experimental research, and there is extensive evidence to support its reliability and validity (see Kovacs (1992)). Cronbach's α was 0.88 in the current study.

2.2.2.4. Family Accommodation Scale (FAS). Parental accommodation to their child's OCD will be measured using the FAS (Calvocoressi et al., 1995). This measure assesses the frequency and severity of parental accommodation on a 5-point scale (0=never/no accommodation to 4=daily/extreme accommodation). Total scores are created by summing eight of the 12 items. There is an additional item that rates parental distress associated with accommodation, and a further three items which assess the consequences of not participating in accommodation to their child's OCD behaviors. Psychometric evaluations of the FAS provide evidence for good internal consistency, as well as good convergent and divergent validity (Flessner et al., 2011). In the current study, Cronbach's α=0.92.

2.2.2.5. EMBU – Parent Report (EMBU-P). The EMBU (Swedish acronym for 'My memories of upbringing'; Castro et al., 1993; Muris et al., 1996) is a measure of parental rearing styles. The scale has 40 items measuring four dimensions of parental rearing: emotional warmth, rejection, control/overprotection, and anxious rearing. Items are rated on a 4-point scale. The EMBU has been shown to have good internal consistency and test retest reliability (Castro et al., 1993; Muris et al., 2003). In the current study, Cronbach's alpha was α=0.77 for emotional warmth, α=0.77 for rejection, α=0.76 for control/overprotection, and α=0.80 for anxious rearing.

2.3. Procedure

The treatment program used in this study was entitled *OCD Busters* (Farrell and Waters, 2008), a manualised family-based group-CBT treatment protocol based on March and colleagues' individual CBT protocol (March et al., 1994; March and Mulle, 1998). Two versions of the program were administered: a child version for ages 7–12 years, and an adolescent version for those aged 13–17 years. The treatment involved 13 weekly child group sessions and 2 booster sessions at 1 month and 3 months post-treatment. Each session ran for approximately 1.5 hours, and included a 15-minute parental review of progress at the end. The child group sessions focused on psychoeducation, cognitive training, anxiety management training, developing stimulus hierarchies, graded ERP (including in session group ERP exercises, and establishing homework ERP), building buffer zones with support networks, and relapse prevention. The two booster sessions provided additional opportunities for children to gain assistance in generalizing the skills learnt in previous sessions. No family missed more than two sessions. There were at least four children in every group with a maximum of seven children per group.

In addition to the child group sessions, there were three structured one-hour parent group sessions (at weeks 2, 5, and 10), focusing on psychoeducation, problem-solving skills, strategies to reduce parental involvement in the child's symptoms, encouraging family support of home-based ERP trials, and emphasizing the importance of daily practice of coping strategies. At least one parent from each family was required to attend each parent session. In the majority of cases (87% of the sample), mothers attended the parent session. At weeks 5 and 10, one-hour individual family review sessions were conducted. Individual family review sessions allowed for the therapist to engage the child in therapist-assisted ERP, address family accommodation, and discuss any issues that were not being addressed in the group sessions (i.e., family conflict).

Six postgraduate level clinicians administered the treatment under supervision of a fully registered psychologist. Each clinician had previous experience in CBT treatment of child anxiety disorders, but not specifically OCD. At least one therapist for each group however had some previous experience in delivering CBT treatment for child OCD. All clinicians received formal weekly supervision. Treatment fidelity was assessed by an independent rater, who viewed 20% of group sessions by random selection. They rated each session on a likert scale from 0 to 5 (0=very poor fidelity, 5=excellent fidelity), an approach consistent with other treatment studies (e.g., Tolin et al., 2005; Storch et al., 2010). Results from an earlier study of the treatment program (Farrell et al., 2012) found excellent adherence to the treatment protocol ($M=4.76$, $SD=0.44$).

3. Results

All statistical analyses were conducted using SPSS version 21. Alpha was set to 0.05 for determining statistical significance.

3.1. Group treatment outcome at 12-month follow-up

Firstly, to examine whether the group-CBT treatment gains were maintained at 12-month follow-up, paired-samples *t*-tests were performed across primary outcome measures of OCD diagnostic severity (ADIS-CSR, NIMH GOCS, and CYBOCS). Results indicated there were significant reductions on all outcome measures from pre-treatment to 12-month follow-up, including the ADIS-CSR ($t=6.58$, $p<0.001$), NIMH GOCS ($t=7.98$, $p<0.001$), and CYBOCS ($t=7.50$, $p<0.001$). Further, there were no significant differences between 6-month and 12-month scores on these primary outcome measures (all $ps>0.05$), indicating that treatment gains were maintained from 6-months to 12-months follow-up. The number of children and youth classified as treatment responders and treatment remitters at 12-months was also determined. At 12-months, 55.8% of the sample met responder criteria (i.e., $<25\%$ reduction in CYBOCS), and 41.9% of the sample were classified as remitters (i.e., $<50\%$ reduction and score of <14 on CYBOCS).

Next, analyses were conducted to determine the number of children and youth who made *clinically significant and reliable change* at 12-months follow-up. To determine to number of participants who made reliable change 12-months after treatment, a Reliable Change Index (RCI) was calculated for each participant. This was done using Jacobson and Truax's (1991) method for calculating the significance of individual change. Using this method, a CYBOCS change score of 8.40 or more was determined as a cut-off for reliable change. Based on this cut-off, the percentage of children and youth who had reliable change was 48.8% at 12-month follow-up, which is similar to 6-months follow-up (46.5%) and improved relative to post-treatment (39.5%). Clinical significance was calculated using Jacobson and Truax's (1991) Criterion A, whereby clinical significance was determined when both if reliable change occurred, and if the post-treatment score was less than two standard deviations below the pre-treatment mean (i.e., a post-treatment CYBOCS score of less than 8.01). Based on this criterion, the percentage of children and youth in the sample who had clinically significant change was 30.2% at 12-months follow-up, which was similar to frequencies at post-treatment (27.9%) and 6-month follow-up (32.6%).

Table 1
Means, standard deviations, and bivariate correlations among all measures.

	M	*SD*	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Post CYBOCS	12.37	8.04	0.57**	0.59**	0.25	0.14	0.53**	0.30	0.29	0.06	0.11	0.51**	−0.13
2. 6M CYBOCS	10.32	7.37	–	0.75**	0.15	0.32	0.27	0.12	0.39*	0.12	0.10	0.36	0.03
3. 12M CYBOCS	10.12	8.25		–	0.22	0.30	0.34	0.18	0.52**	−0.07	0.13	0.25	0.05
4. Pre CYBOCS	21.26	6.62			–	0.29	0.54**	0.45**	0.35*	0.02	0.01	0.19	0.16
5. OCD impact	35.15	26.05				–	0.27	0.08	0.31	−0.12	−0.17	0.31	−0.40*
6. Depression	10.97	7.87					–	0.44**	0.32	−0.17	−0.09	0.14	−0.30
7. Anxiety	58.44	17.55						–	0.26	−0.06	0.07	0.22	−0.15
8. Family accomm	20.38	11.86							–	0.19	0.12	0.39*	0.08
9. Parental anxiety	24.63	6.08								–	0.74**	0.61**	−0.12
10. Parental control	27.88	4.51									–	0.58**	0.13
11. Parental rejection	17.69	3.97										–	−0.41*
12. Parental warmth	33.80	3.80											–

* $p < 0.05$.
** $p < 0.01$.

3.2. Baseline predictors of post-treatment, 6-month, and 12-month CYBOCS severity

To examine baseline predictors of treatment response, bivariate correlations were used to examine associations among post, 6-month, and 12-month CYBOCS scores and the independent variables. As shown in Table 1, baseline depression and parental rejection were positively associated with post-treatment CYBOCS severity. However, these were no longer significant associations at 6-month and 12-month follow-up. Family accommodation was significantly positively associated with greater CYBOCS severity at 6 month and at 12-month follow-up. No other significant associations were found.

To examine unique associations among those variables that reached significance in correlations, three hierarchical multiple regressions were conducted with post-treatment CYBOCS score, 6-month CYBOCS score, and 12-month CYBOCS score as respective dependent variables. Depression was entered at step 1 of each model, given that comorbid depression has been shown in the literature to be a predictor of treatment response (Storch et al., 2008). Baseline CYBOCS severity was also included at step 1 as a covariate. When analysing 6-month and 12-month data, post-treatment CYBOCS severity was also included in step 1 of the model as a covariate. At step 2 of the analysis, family accommodation and parental rejection were added.

At post-treatment, the regression model at step 1 accounted for 27.7% of the variance in explaining CYBOCS severity ($F(2, 26) = 4.97$, $p = 0.015$.) Baseline depression was a significant unique correlate of post-treatment CYBOCS severity, accounting for 17.9% of unique variance. At step 2 of the analysis, an additional 19.2% of variance was explained by the addition of family variables ($F_{chg}(2, 24) = 4.30$, $p = 0.024$). Depression remained a significant unique correlate, accounting for 16.1% of unique variance. Further, parental rejection explained a significant unique portion of the variance (17.7%) in post-treatment CYBOCS severity. Family accommodation was not found to explain a significant portion of variance in post-treatment severity (see Table 2).

At 6-month follow-up, step 1 of the regression model accounted for 34.2% of the variance in 6-month CYBOCS severity ($F(3, 24) = 4.15$, $p = 0.017$). As shown in Table 3, post-treatment CYBOCS severity was significantly associated with 6-month CYBOCS severity, and accounted for 25.2% of unique variance. Baseline depression did not significantly explain unique variance in 6-month CYBOCS severity. Finally, the addition of family accommodation and parental rejection at step 2 of the analysis did not contribute any further unique variance in CYBOCS severity at 6-month follow-up.

Table 2
Hierarchical multiple regression analysis testing the hypothesised correlates of post-treatment OCD severity (N = 38).

Variable	*B*	*SE B*	*β*	*p*
Step 1, $R^2 = 0.27$, $F(2, 26) = 4.97$, $p = 0.015$				
Baseline CYBOCS	0.05	0.24	0.04	0.830
Baseline Depression	0.51	0.20	0.50	0.018*
Step 2, $\Delta R^2 = 0.38$, $F_{chg}(2, 24) = 4.35$, $p = 0.024$				
Baseline CYBOCS	−0.02	0.22	−0.02	0.915
Baseline Depression	0.49	0.18	0.48	0.013*
Family Accommodation	−0.03	0.12	−0.04	0.830
Parental Rejection	0.92	0.33	0.46	0.009**

Note: Final $R^2 = 0.44$, $F(4, 24) = 5.30$, $p = 0.003$.
* $p < 0.05$.
** $p < 0.01$.

Table 3
Hierarchical multiple regression analysis testing the hypothesised correlates of 6-month follow-up OCD severity (N = 34).

Variable	*B*	*SE B*	*β*	*p*
Step 1, $R^2 = 0.34$, $F(3, 24) = 4.15$, $p = 0.017$				
Baseline CYBOCS	0.16	0.22	0.14	0.481
Post-treatment CYBOCS	0.54	0.18	0.59	0.006**
Baseline Depression	−0.11	0.21	−0.12	0.587
Step 2, $\Delta R^2 = 0.05$, $F_{chg}(2, 22) = 0.90$, $p = 0.422$				
Baseline CYBOCS	0.09	0.23	0.08	0.688
Post-treatment CYBOCS	0.52	0.21	0.56	0.022*
Baseline Depression	−0.14	0.21	−0.15	0.511
Family accommodation	0.16	0.12	0.25	0.208
Parental Rejection	−0.04	0.39	−0.02	0.918

Note: Final $R^2 = 0.39$, $F(5, 25) = 2.82$, $p = 0.040$.
* $p < 0.05$.
** $p < 0.01$.

At 12-month follow-up, step 1 of the regression model accounted for 35.0% of the variance in 12-month CYBOCS severity ($F(3, 24) = 4.31$, $p = 0.014$). As shown in Table 4, post-treatment CYBOCS severity was uniquely associated with 12-month CYBOCS severity, and accounted for 23.2% of variance. The addition of family variables at step 2 of the regression model contributed to a further 17.1% of variance in 12-month CYBOCS severity. Post-treatment CYBOCS score remained a significant unique correlate (21.3% of variance). Further, family accommodation accounted for a significantly portion of unique variance (16.6%) in 12-month CYBOCS severity. Parental rejection did not account for any unique variance in CYBOCS severity at 12-month follow-up.

Table 4
Hierarchical multiple regression analysis testing the hypothesised correlates of 12-month follow-up OCD severity (N=34).

Variable	*B*	*SE B*	*β*	*p*
Step 1, R^2=0.35, $F(3, 24)$=4.31, p=0.014				
Baseline CYBOCS	0.02	0.24	0.02	0.924
Post-treatment CYBOCS	0.58	0.20	0.57	0.007**
Baseline Depression	0.04	0.23	0.03	0.881
Step 2, ΔR^2=0.17, $F_{chg}(2, 22)$=3.93, p=0.035				
Baseline CYBOCS	−0.08	0.23	−0.07	0.717
Post-treatment CYBOCS	0.65	0.21	0.63	0.005**
Baseline Depression	−0.08	0.21	−0.07	0.718
Family Accommodation	0.33	0.12	0.47	0.011*
Parental Rejection	−0.50	0.39	−0.24	0.213

Note: Final R^2=0.52, $F(5, 22)$=4.78, p=0.004.
* p < 0.05.
** p < 0.01.

3.3. Baseline predictors of 12-month treatment response and treatment remission

To analyse whether responders and non-responders, as well as remitters and non-remitters, at 12-month follow-up were different on baseline characteristics, a series of independent-samples *t*-tests were conducted. Results indicated 12-month treatment non-responders had significantly higher levels of depression at pre-treatment than treatment responders. No other significant differences were identified between 12-month responders and non-responders (see Table 5).

No significant differences in baseline characteristics were identified between 12-month remitters and non-remitters. Children who were in remission at 12-months had lower levels of family accommodation at pre-treatment than children who were not in remission at 12-months. However, whilst the difference was medium to large in effect size (d = 0.72), it did not reach statistical significance (see Table 6).

4. Discussion

The current study aimed to explore baseline predictors of response to group CBT in children and adolescents with OCD. The study also evaluated the long-term efficacy of group CBT for pediatric OCD, by examining 12-month follow-up data. Results indicated treatment gains reported in Farrell et al. (2012) were maintained at 12-months, with mean OCD severity significantly lower at 12-months than at pre-treatment. Therefore, the current study supports the long-term efficacy of group CBT treatment for pediatric OCD.

Table 6
T-tests comparing 12-month remitters and non-remitters on baseline variables.

	Remitters (n=18)		Non-Remitters (n=16)				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
Depression	9.64	5.90	12.07	8.54	0.88	0.389	0.35
Anxiety	57.79	17.45	58.79	17.22	0.15	0.880	0.06
Baseline CYBOCS severity	22.44	5.60	20.93	4.64	−0.83	0.411	0.30
Functional impairment	30.85	31.39	34.93	21.17	0.39	0.698	0.15
Family accommodation	16.53	8.91	23.73	11.88	1.96	0.060	0.72
Parental anxiety	26.94	6.25	24.85	4.39	−1.02	0.318	0.39
Parental control	28.00	4.29	29.27	4.00	0.78	0.444	0.31
Parental rejection	17.53	4.11	18.25	3.36	0.50	0.621	0.19
Parental warmth	33.47	3.59	35.17	3.54	1.26	0.218	0.48

Although the majority of children in the current sample responded well to group CBT, a large proportion of the sample (44.2%) were classified as treatment non-responders at 12-months follow-up. Results from bivariate correlations indicated baseline depression and parental rejection were positively associated with greater post-treatment OCD severity, whereas only family accommodation was significantly positively associated with greater OCD severity at 6-month and at 12-month follow-up.

Baseline OCD severity and OCD-related functional impairment were not significantly associated with OCD severity after group CBT. Therefore, in the current study, children and youth responded equally well to group CBT, regardless of OCD severity. This finding is inconsistent with previous studies exploring predictors of treatment response to individual CBT (Barrett et al., 2005; Garcia et al., 2010; Ginsburg, et al., 2008; Piacentini et al., 2002), which found that greater baseline severity of symptoms predicted poorer post-treatment severity. Further, in the current study, child baseline anxiety, parental anxious rearing, parental control, and parental warmth were not found to be associated with OCD severity after group CBT.

Child baseline depression was uniquely associated with post-treatment OCD severity. This suggests children with more versus fewer depressive symptoms at pre-treatment respond more poorly to group CBT for OCD. This finding is consistent with Storch et al. (2008), who found that the presence of a major depressive disorder was associated with lower remission rates in youth with OCD. Further, results indicated children who had responder status at 12-months follow-up (i.e., had a greater than 25% reduction in CYBOCS severity) had fewer depressive symptoms at pre-treatment than children who were not classified as responders at 12-months follow-up. This suggests higher levels of depression in

Table 5
T-tests comparing 12-month responders and non-responders on baseline variables.

	Responders (n=24)		Non-Responders (n=9)				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
Depression	8.85	5.24	15.00	9.95	2.10	0.046*	0.84
Anxiety	58.60	17.45	55.86	17.69	−0.36	0.724	0.14
Baseline CYBOCS severity	21.96	5.58	21.22	4.06	−0.33	0.721	0.12
Functional impairment	29.37	18.44	47.00	40.11	1.56	0.133	0.63
Family accommodation	18.32	10.44	23.33	12.22	1.16	0.257	0.43
Parental anxiety	26.48	5.64	25.43	5.32	−0.43	0.670	0.17
Parental control	28.10	4.24	29.71	3.90	0.88	0.386	0.35
Parental rejection	17.76	3.92	18.14	3.85	0.22	0.825	0.09
Parental warmth	34.14	3.69	33.71	3.55	−0.27	0.791	0.11

* p < 0.05.

children with OCD may predict poorer long-term response to group CBT treatment programs.

Results of the multivariate analysis also indicated parent-reported parental rejection was a significant unique correlate of post-treatment OCD severity. This finding suggests that children of parents who engage in more parental rejection (i.e. use of corporal punishment, unfair treatment, blaming the child, or shaming the child) will not respond as well to group CBT. However, parental rejection did not remain a significant correlate with OCD severity at 6-month and 12-month follow-up, indicating other variables may be more important in predicting longer-term treatment response (e.g. post-treatment OCD severity and family accommodation).

The current study found that greater levels of family accommodation at pre-treatment were uniquely associated with greater OCD symptom severity at 12-months follow-up. This suggests that children of families who engage in greater accommodation of OCD symptoms (e.g., assisting the child with a ritual) will have a poorer response than children of families to do not accommodate their habits or rituals. Further, the current study found there were higher levels of family accommodation in children who did not achieve treatment remission than children whose symptoms were in remission at 12-months follow-up. However, this difference was non-significant ($p=0.060$). Therefore, future research may be needed to confirm whether baseline levels of family accommodation can help to differentiate children who achieve remission status versus those who will not. Nonetheless, the current study indicates family accommodation may be an important factor in understanding treatment response in children and youth with OCD, which is consistent with previous research (e.g., Garcia et al., 2010).

In the current study, post-treatment OCD symptom severity was the strongest unique correlate of 6- and 12-month OCD severity. Other variables (depression and parental rejection) did not remain unique correlates of long-term response after accounting for post-treatment severity. This indicates we may be able to best predict a young person's long-term response to group-CBT from the status of their symptoms immediately after treatment.

The current study has a number of important implications for clinical practice. Firstly, results of the current study may indicate depression should be identified and treated prior to beginning treatment for OCD. For example, children with greater depressive symptoms could be given skills in behavior activation and cognitive restructuring for depressive thoughts. The current study also highlighted the need to address adverse family factors in treatment, including parental rejection and family accommodation. It may be important to target parental rejection during family components of treatment. For example, psychoeducation could be provided on the impacts of rejection (e.g., blaming, unfairly punishing, or belittling the child) on the child's well-being and likely response to treatment. Clinicians may also identify families with higher levels of accommodation and address this in therapy; for example, by giving parents exposure steps to reduce accommodating behavior. Finally, given that initial post-treatment OCD severity was the strongest unique predictor of 6- and 12-month OCD severity, children with poorer immediate response may benefit from being offered additional booster sessions, as results indicate they may not continue to improve in the long-term.

There are a number of limitations to the current study. As the study was an open trial, comparisons between group-CBT and a control group cannot be made. Further, this study had a relatively small sample size for conducting multiple regression analysis and for making comparisons between groups. Moreover, sample sizes were unequal when comparing responders and non-responders on baseline variables at 12-months post-treatment. These issues with sample size may have limited power and inflated the possibility of type 2 error. Another limitation of the current study is the reliance on parent-only ADIS interviews; however, past research demonstrates good convergence between parents and clinicians, which is frequently higher than with child report (Grills and Ollendick, 2003). Thus, future research is needed with larger sample sizes and a control group to evaluate the efficacy of group-CBT and predictors of treatment response.

The current study evaluated the long-term efficacy of a group-based CBT treatment program for pediatric OCD. Results indicated gains from group-CBT can be maintained for up to 12-months post-treatment. Predictors of treatment response were also examined, with depression, parental rejection, and family accommodation found to be associated with OCD symptom severity after treatment. Tailoring of current CBT approaches is needed, in order to improve the likelihood of positive outcomes for these children.

Funding source

The current research was funded by the Behavioural Basis of Health, Griffith University. The funding source did not have a role in the study design; in the collection, analysis and interpretation of data; or in the writing of the report.

References

Abramowitz, J.S., Whiteside, S.P., Deacon, B.J., 2005. The effectiveness of treatment for paediatric obsessive-compulsive disorder: A meta-analysis. Behav. Ther. 36, 55–63.

Albano, A., Knox, L., Barlow, D., 1996. Parental involvement in the treatment of childhood obsessive-compulsive disorder: A multiple-baseline examination incorporating parents. Behav. Ther. 27, 93–115.

Allsopp, M., Verduyn, C., 1990. Adolescents with obsessive compulsive disorder: a case note review of consecutive patients referred to a provincial regional adolescent psychiatry unit. J. Adolesc. 13, 157–169.

Alonso, P., Menchon, J.M., Mataix-Cols, D., Pifarre, J., Urretavizcaya, M., Crespo, J.M., Vallejo, J., 2004. Perceived parental rearing style in obsessive-compulsive disorder: relation to symptom dimensions. Psychiatry Res 127, 267–278.

Barrett, P., Dadds, M.R., Rapee, R.M., 1996. Family treatment of childhood anxiety: a controlled trial. J. Consult. Clin. Psychol. 64, 333–342.

Barrett, P., Farrell, L., Dadds, M., Boulter, N., 2005. Cognitive-behavioral family treatment of childhood obsessive-compulsive disorder: long-term follow- up and predictors of outcome. J. Am. Acad. Child Adolesc. Psychiatry 44, 1005–1014.

Barrett, P., Healy-Farrell, L., Piacentini, J., March, J., 2004. Treatment of OCD in children and adolescents. In: Barrett, P., Ollendick, T. (Eds.), Handbook of Interventions That Work with Children and Adolescents: Prevention and Treatment. Wiley, West Sussex, pp. 187–216.

Barrett, P., Shortt, A., Healy, L., 2002. Do parent and child behaviours differentiate families whose children have obsessive-compulsive disorder from other clinic and non-clinic families? J. Child. Psychol. Psychiatry 43, 597–607.

Barrett, P.M., Rasmussen, P.J., Healy, L., 2001. The effect of obsessive–compulsive disorder on sibling relationships in late childhood and early adolescence: preliminary findings. Aust. Educ. Dev. Psychol. 17, 82–102.

Bolton, D., Luckie, M., Steinberg, D., 1995. Long-term course of obsessive-compulsive disorder treated in adolescence. J. Am. Acad. Child Adolesc. Psychiatry 34, 1441–1450.

Calvocoressi, L., Lewis, B., Harris, M., Trufan, S.J., Goodman, W.K., McDougle, C.J., Price, L., 1995. Family accommodation of obsessive compulsive disorder. Am. J. Psychiatry 152, 441–443.

Castro, J., Toro, J., Van der Ende, J., Arrindell, W.A., 1993. Exploring the feasibility of assessing perceived parental rearing styles in Spanish children with the EMBU. Int. J. Soc. Psychiatry 39, 47–57.

Cooper, M., 1996. Obsessive compulsive disorder: effects on family members. Am. J. Orthopsychiatr. 66, 296–304.

Douglass, H.M., Moffitt, T.E., Dar, R., McGee, R., Silva, P., 1995. Obsessive-compulsive disorder in a birth cohort of 18-year-olds: Prevalence and predictors. J. Am. Acad. Child. Adolesc. Psychiatry 34, 1424–1431.

Farrell, L., Waters, A., Milliner, E., Ollendick, T., 2012. Comorbidity and treatment response in pediatric obsessive-compulsive disorder: A pilot study of group cognitive-behavioral treatment. Psychiatry Res. 199, 115–123.

Flessner, C.A., Sapyta, J., Garcia, A., Freeman, J.B., Franklin, M.E., Foa, E., March, J., 2011. Examining the psychometric properties of the Family Accommodation Scale-Parent-Report (FAS-PR). J. Psychopathol. Behav. Assess. 33, 38–46.

Garcia, A.M., Sapyta, J.J., Moore, P.S., Freeman, J.B., Franklin, M.E., March, J.S., Foa, E. B., 2010. Predictors and moderators of treatment outcome in the Pediatric

Obsessive Compulsive Treatment Study (POTS I). J. Am. Acad. Child Adolesc. Psychiatry 49, 1024–1033.
Geller, D.A., March, J.S., 2012. Practice parameters for the assessment and treatment of obsessive-compulsive disorder in children and adolescents. J. Am. Acad. Child Adolesc. Psychiatry 51, 99–112.
Geller, D.A., Biederman, J., Griffin, S., Jones, J., Lefkowitz, T.R., 1996. Comorbidity of juvenile obsessive–compulsive disorder with disruptive behavior disorders. J. Am. Acad. Child Adolesc. Psychiatry 35, 1637–1646.
Ginsburg, G.S., Newman Kingery, J., Drake, K.L., Grados, M.A., 2008. Predictors of treatment response in pediatric obsessive-compulsive disorder. J. Am. Acad. Child Adolesc. Psychiatry 47, 868–878.
Grills, A.E., Ollendick, T.H., 2003. Multiple informant agreement and the anxiety disorders interview schedule for parents and children. J. Am. Acad. Child Adolesc. Psychiatry 42, 30–40.
Insel, T.R., Hoover, C., Murphy, D.L., 1983. Parents of patients with obsessive-compulsive disorder. Psychol. Med. 13, 807–811.
Jacobson, N.S., Truax, P., 1991. Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. J. Consult. Clin. Psychol. 59, 12–19.
Kendall, P.C., 1994. Treating anxiety disorders in children: results of a randomized clinical trial. J. Consult. Clin. Psychol. 62, 100–110.
Kim, S., Dysken, M., Kuskowski, N., 1992. The Symptom Checklist-90 obsessive-compulsive subscale: a reliability and validity study. Psychiatry Res. 41, 37–44.
Kim, S., Dysken, M., Kuskowski, N., Hoover, K., 1993. The Yale-Brown Obsessive-Compulsive-Scale and the NIMH Global Obsessive-Compulsive Scale (GOCS): a reliability and validity study. Int. J. Methods Psychiatr. Res. 3, 37–44.
Kovacs, M., 1992. Children's Depression Inventory (CDI). Multi-Health Systems, Tonawanda, NY.
Lennertz, L., Grabe, H.J., Ruhrmann, S., Rampacher, F., Vogeley, A., Schulze-Rauschenbach, S., Wagner, M., 2010. Perceived parental rearing in subjects with obsessive-compulsive disorder and their siblings. Acta Psychiatr. Scand. 121, 280–288.
Leonard, H.L., Swedo, S.E., Lenane, M.C., Rettew, D.C., Hamburger, S.D., Bartko, J.J., Rapoport, J.L., 1993. A 2- to 7-year follow-up study of 54 obsessive-compulsive children and adolescents. Arch. Gen. Psychiatry 50, 429–439.
Lewin, A.B., Chang, S., McCracken, J., McQueen, M., Piacentini, J., 2010. Comparison of clinical features among youth with tic disorders, obsessive–compulsive disorder (OCD), and both conditions. Psychiatry Res. 178, 317–322.
March, J., Mulle, K., 1998. OCD in Children and Adolescents: A Cognitive-Behavioral Treatment Manual. Guilford Press, New York.
March, J.S., 1997. Multidimensional Anxiety Scale for Children. Multi-Health Systems, North Tonawanda, NY.
March, J., Mulle, K., Herbel, B., 1994. The effectiveness of treatment for adolescents with obsessive-compulsive disorder: An open trial of a new protocol driven treatment package. J. Am. Acad. Child Adolesc. Psychiatry 33, 333–341.
March, J.S., Franklin, M.E., Leonard, H., Garcia, A., Moore, P., Freeman, J., Foa, E., 2007. Tics moderate treatment outcome with sertraline but not cognitive-behavior therapy in pediatric obsessive-compulsive disorder. Biol. Psychiatry 61, 344–347.
March, J.S., Parker, J.D.A., Sullivan, K., Stallings, P., Conners, K., 1997. The Multidimensional Anxiety Scale for Children (MASC): Factor structure, reliability and validity. J. Am. Acad. Child Adolesc. Psychiatry 36, 554–565.
McGuire, J.F., Piacentini, J., Lewin, A.B., Brennan, E.A., Murphy, T.K., Storch, E.A., 2015. A meta-analysis of cognitive behaviour therapy and medication for child obsessive-compulsive disorder: Moderators of treatment efficacy, response, and remission. Depression Anxiety 32, 580–593.
Merlo, L.J., Lehmkuhl, H.D., Geffken, G.R., Storch, E.A., 2009. Decreased family accommodation associated with improved therapy outcome in pediatric obsessive-compulsive disorder. J. Consult. Clin. Psychol. 77, 355–360.
Muris, P., Bogels, S., Meesters, C., Van der Kamp, N., Van Oosten, A., 1996. Parental rearing practices, fearfulness, and problem behaviour in clinically referred children. Personal. Individ. Differ. 21, 813–818.
Muris, P., Meesters, C., van Brakel, A., 2003. Assessment of anxious rearing behaviours with a modified version of "Egna Minnen Betraffande Uppfostran" questionnaire for children. J. Psychopathol. Behav. Assess. 25, 229–237.
Ollendick, T.H., Ost, L.-G., Reuterskiold, L., Costa, N., Cederlund, R., Sirbu, C., Thompson III, T.E., Jarrett, M.A., 2009. One-session treatment of specific phobias in youth: A randomized clinical trial in the United States and Sweden. J. Consult. Clin. Psychol. 77, 504–516.
Pediatric OCD Treatment Study Team, 2004. Cognitive-behavior therapy, sertraline, and their combination for children and adolescents with obsessive-compulsive disorder. JAMA 292, 1969–1976.
Piacentini, J., Jaffer, M., 1999. Measuring fUnctional Impairment in Youngsters with OCD: Manual for the Child OCD Impact Scale (COIS). UCLA Department of Psychiatry, Los Angeles, CA.
Piacentini, J., Bergman, R.L., Jacobs, C., McCracken, J.T., Kretchman, J., 2002. Open trial of cognitive behavior therapy for childhood obsessive–compulsive disorder. J. Anxiety Disord. 16, 207–219.
Piacentini, J., Bergman, R.L., Keller, M.B., McCracken, J., 2003. Functional impairment in children and adolescents with obsessive-compulsive disorder. J. Child Adolesc. Psychopharmacol. 13, 61–69.
Piacentini, J., Jaffer, M., Bergman, R.L., McCracken, J., Keller, M., 2001. Measuring impairment in childhood OCD: Psychometric properties of the COIS. Proceedings of the American Academy of Child and Adolescent Psychiatry Meeting.
Rasmussen, S.A., Eisen, J.L., 1990. Epidemiology of obsessive compulsive disorder. J. Clin. Psychiatry 53, 10–13.
Rudy, B.M., Lewin, A.B., Geffken, G.R., Murphy, T.K., Storch, E.A., 2014. Predictors of treatment response to intensive cognitive-behavioural therapy for pediatric obsessive-compulsive disorder. Psychiatry Res. 220, 433–440.
Sánchez-Meca, J., Rosa-Alcázar, A.I., Iniesta-Sepúlveda, M., Rosa-Alcáza, A., 2014. Differential efficacy of cognitive-behavioral therapy and pharmacological treatments for pediatric obsessive-compulsive disorder: A meta-analysis. J. Anxiety Disord. 28, 31–44.
Scahill, L., Riddle, M.A., McSwiggin-Hardin, M., Ort, S.I., King, R.A., Goodman, W.K., Leckman, J.F., 1997. Children's Yale-Brown Obsessive Compulsive Scale: Reliability and validity. J. Am. Acad. Child Adolesc. Psychiatry 36, 844–852.
Shaffer, D., Gould, M.S., Fisher, P., Trautman, P., Moreau, D., Kleinman, M., Flory, M., 1996. Psychiatric diagnosis in child and adolescent suicide. Arch. Gen. Psychiatry 53, 339–348.
Silverman, W.K., Albano, A.M., 1996. The Anxiety Disorders Interview Schedule for DSM-IV-Child and Parent Versions. Oxford University Press, London.
Stewart, S.E., Geller, D.A., Jenike, M., Pauls, D., Shaw, D., Mullin, D., Faraone, S.V., 2004. Long term outcomes of pediatric obsessive-compulsive disorder: a meta-analysis and qualitative review of the literature. Acta Psychiatr. Scand. 110, 4–13.
Storch, E.A., Larson, M.J., Muroff, J., Caporino, N., Geller, D., Reid, J., Morgan, J., Jordan, P., Murphy, T.K., 2010. Functional impairment in pediatric obsessive-compulsive disorder. J. Anxiety Disord. 24, 275–283.
Storch, E.A., Merlo, L.J., Larson, M.J., Geffken, G.R., Lehmkuhl, H.D., Jacob, M.L., Murphy, T.K., Goodman, W.K., 2008. Impact of comorbidity on cognitive behavioral therapy response in pediatric obsessive–compulsive disorder. J. Am. Acad. Child Adolesc. Psychiatry 47, 583–590.
Storch, E.A., Roth Ledley, D., Lewin, A.B., Murphy, T.K., Johns, N.B., Goodman, W.K., Geffken, G.R., 2006. Peer victimization in children with obsessive compulsive disorder: relations with symptoms of psychopathology. J. Clin. Child Adolesc. Psychol. 35, 446–455.
Storch, E.A., Bussing, R., Small, B.J., Geffken, G.R., McNaramara, J.P., Rahman, O., Lewin, A., Garvan, B., Goodman, C.S., Murphy, T. K, W.K., 2013. Randomized, placebo-controlled trial of cognitive-behavioral therapy alone or combined with sertraline in the treatment of pediatric obsessive-compulsive disorder. Behav. Res. Ther. 51, 823–829.
Taylor, S., 1998. Assessment of obsessive-compulsive disorder. In: Swinson, R., Antony, M. (Eds.), Obsessive Compulsive Disorder: Theory, Research, and Treatment. Guilford, New York, pp. 229–257.
Tolin, D.F., Diefenbach, G.J., Maltby, N., Hannan, S., 2005. Stepped care for obsessive-compulsive disorder: A pilot study. Cogn. Behav. Pract. 12, 403–424.
Toro, J., Cervera, M., Osejo, E., Salamero, M., 1992. Obsessive compulsive disorder in childhood and adolescence: a clinical study. J. Child Psychol. Psychiatry 33, 1025–1037.
Valleni-Basile, L.A., Garrison, C.Z., Jackson, K.L., Waller, J.L., McKeown, R.E., Addy, C. L., Cuffe, S.P., 1995. Family and psychosocial predictors of obsessive-compulsive disorder in a community sample of young adolescents. J. Child. Fam. Stud. 4, 193–206.
Waters, A.M., Farrell, L.J., Schilpzand, E., 2013. Neuropsychological assessment and clinical intervention for youth with anxiety disorders. In: Reddy, L.A., Weissman., A., Hale, J.B. (Eds.), Neuropsychological assessment and Intervention for Youth: An Evidence-Based Approach to Emotional and Behavioral Disorders. American Psychological Association Press, Washington DC, pp. 13–40.
Waters, A., Zimmer-Gembeck, M.J., Farrell, L.J., 2012. The relationship of child and parent factors with children's anxiety symptoms: Parental anxious rearing as a mediator. J. Anxiety Disord. 7, 737–745.
Waters, T., Barrett, P., March, J., 2001. Cognitive-behavioral family treatment of childhood obsessive-compulsive disorder: An open clinical trial. Am. J. Psychother. 55, 372–387.
Watson, H.J., Rees, C.S., 2008. Meta-analysis of randomized, controlled treatment trials for pediatric obsessive-compulsive disorder. J. Child Psychol. Psychiatry 49, 489–498.
Wever, C., Rey, J.M., 1997. Juvenile obsessive-compulsive disorder. Aust. N. Z. J. Psychiatry 31, 105–113.
Zohar, A.H., 1999. The epidemiology of obsessive compulsive disorder in children and adolescents. Child Adolesc. Psychiatr. Clin. N. Am. 8, 445–460.