

**Augmenting Cognitive-Behavioral Therapy with  
Parent Management Training to Reduce Coercive and  
Disruptive Behavior in Pediatric Obsessive-  
Compulsive Disorder**

by

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## Abstract

Coercive and disruptive behaviors are common among youth with obsessive-compulsive disorder (OCD) and are thought to contribute to impairment and interfere with the effectiveness of cognitive-behavioral therapy (CBT). Parent management training (PMT) is the most empirically supported intervention for disruptive behavior problems in youth; however, no group-based PMT intervention has been adapted to address OCD-related disruptive behaviors. This study investigated the efficacy of a novel, group-based adjunctive PMT intervention among a non-randomized sample of youth receiving family-based group CBT for pediatric OCD. Linear mixed models were used to estimate treatment effects across several OCD-related and parenting outcomes at post-treatment and 1-month follow-up. Treatment response for 37 families who received the augmented program (CBT+PMT;  $M_{age} = 13.90$ ) was compared to that of 80 families who previously received only CBT (CBT-Only;  $M_{age} = 13.93$ ) using propensity scores and inverse probability of treatment weighting. Multiple regression models were conducted using pre-treatment characteristics and quality of participation to predict post-treatment outcomes for CBT+PMT. Families who received CBT+PMT showed significant improvements in all OCD-related outcomes and parents' tolerance of their children's distress at post-treatment and follow-up. Treatment response on OCD-related outcomes did not significantly differ between groups. Youths' higher age significantly predicted greater symptom severity at post-treatment, and more severe symptoms at pre-treatment significantly predicted lower parental involvement in youth's lives at post-treatment. Results suggest that CBT+PMT is an effective treatment for pediatric OCD across multiple indicators; however, CBT+PMT may not provide incremental benefits beyond CBT-Only, at least as presently delivered/examined. Future research is needed to determine the most effective and feasible ways to incorporate key PMT components into CBT-based interventions.

**Keywords:** obsessive-compulsive disorder; disruptive behavior problems; child/adolescent; parent management training; cognitive-behavioral therapy

For my family, whose loving and unwavering support kept me afloat through my long and winding trudge through graduate school.

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## List of Acronyms

ADHD	Attention-Deficit/Hyperactivity Disorder
ADIS-IV	Anxiety Disorders Interview Schedule for DSM-IV
APQ	Alabama Parenting Questionnaire
BCCH	British Columbia Children’s Hospital
BCCHR	BC Children’s Hospital Research Institute
CBT	Cognitive-Behavioral Therapy
CD	Conduct Disorder
CD-POC	Coercive and Disruptive Behavior Scale – Pediatric OCD
COIS-R	Child Obsessive Compulsive Impact Scale – Revised
CY-BOCS	Children’s Yale-Brown Obsessive Compulsive Scale
DBD	Disruptive Behavior Disorder
E/RP	Exposure and Response Prevention
FAS	Family Accommodation Scale
IPTW	Inverse Probability of Treatment Weighting
MAR	Missing at Random
MCAR	Missing Completely at Random
OCD	Obsessive-Compulsive Disorder
ODD	Oppositional Defiant Disorder
OFF	OCD Family Functioning Scale
PMT	Parent Management Training
POP	Provincial OCD Program
PSOC	Parenting Sense of Competence Scale
PT-OCD	Parent Tolerance of Child Distress Scale
RCT	Randomized Controlled Trial
REDCap	Research Electronic Data Capture
SFU	Simon Fraser University
SPACE	Supportive Parenting for Anxious Childhood Emotions
SSRI	Selective Serotonin Reuptake Inhibitor
UBC	University of British Columbia

# Chapter 1. Introduction

Obsessive-compulsive disorder (OCD) is a mental illness characterized by the presence of intrusive, distressing, and difficult to manage thoughts, images, or impulses (i.e., *obsessions*), as well as repetitive, ritualistic mental or physical acts (i.e., *compulsions*) that the individual is compelled to perform (American Psychiatric Association, 2013). OCD has a lifetime prevalence of 1–3% in the general population (Rapoport et al., 2000; Weissman et al., 1994), and is both debilitating (Piacentini et al., 2003, 2007) and disruptive to quality of life (Lack et al., 2009). The degree of impairment associated with OCD has resulted in the disorder being listed among the World Health Organization’s 10 most disabling medical conditions worldwide in terms of loss of income and quality of life (Murray & Lopez, 1996). Although the disorder affects individuals across the lifespan, OCD onset predominantly occurs during childhood (Pinto et al., 2006), and often runs a chronic course in the absence of treatment (Rufer et al., 2005).

CBT with exposure and response prevention (E/RP), delivered alone or in conjunction with serotonin reuptake inhibitor medication (SSRIs), is considered the first-line intervention for youth with OCD (Barrett et al., 2008; Freeman et al., 2018; Geller et al., 2012; O’Kearney et al., 2006; Storch et al., 2020; Watson & Rees, 2008). CBT has demonstrated consistently large effect sizes (Hedges’  $g = 0.93$ ; McGuire et al., 2015; Öst et al., 2016) and lower rates of attrition than any other psychological or pharmacological approach (Johnco et al., 2020); however, clinical data suggest that as many as 54% of treated youth are nonresponsive to treatment or maintain residual symptoms after treatment (Pediatric OCD Treatment Study Team, 2004; Storch, Merlo, Larson, Marien, et al., 2008). A recent meta-analysis by Uhre and colleagues (2020) found that 47.8% of youth still met criteria for OCD after completing a trial of CBT; however, it is important to note that the methodology used in this meta-analysis and the conclusions drawn by its authors have since been criticized as flawed by a large group of clinician-researchers (Storch et al., 2020)

## **Comorbidity of Disruptive Behavior Problems in Pediatric OCD**

This high rate of treatment resistance may be explained in part by the frequent comorbidity in childhood OCD (Storch, Merlo, Larson, Geffken, et al., 2008); clinical reports indicate that up to 80% of affected youth meet diagnostic criteria for another mental health disorder, most commonly an anxiety disorder (26–75%), depressive disorder (25–62%), attention-deficit/hyperactivity disorder (ADHD; 16–59%), tic disorder (15–30%), or a *disruptive behavior disorder* (DBD) such as oppositional defiant disorder (ODD; 9–43%) and conduct disorder (CD; 2–11%; Abramovitch et al., 2015; Garcia et al., 2009; Geller et al., 1996; Hanna et al., 1995; Huang et al., 2014; Ivarsson et al., 2008; Lewin et al., 2005; Reddy et al., 2000; Riddle et al., 1990; Swedo et al., 1989). Related to these comorbidities, OCD-affected children with high levels of DBD symptoms (i.e., those related to ODD and CD) appear to be at greater risk for current and future impairment than OCD-affected children without DBD symptoms (Hanna et al., 2005). DBD symptoms include aggressive and coercive behaviors as well as noncompliance (Taylor et al., 2014), and when occurring at high levels alongside OCD, are associated with more frequent and disabling OCD-symptoms, greater functional impairment, higher levels of internalizing and overall symptoms, less symptom resistance, and attenuated CBT and/or pharmacotherapy outcomes relative to those without co-occurring DBD symptoms (Garcia et al., 2010; Geller et al., 2003; Hanna et al., 1995; Langley et al., 2010; Storch, Merlo, Larson, Geffken, et al., 2008; Storch, Lewin, et al., 2010).

## **The Role of Family Accommodation in the Maintenance of OCD Symptoms**

While the mechanisms through which disruptive behaviors affect the course and presentation of pediatric OCD are multifaceted, one important path has been identified through *family accommodation*. Family accommodation refers to actions taken by family members to help the child avoid obsessional triggers by facilitating rituals (e.g., providing necessary objects), yielding to the child's demands (e.g., follow a certain routine in order to minimize anxiety), providing reassurance to the child (e.g., answering questions repeatedly), assisting with or completing tasks for the child (e.g., homework), or decreasing the child's responsibility (e.g., limiting attempts at discipline) because OCD symptoms interfere with his/her ability to meet expectations (Storch, Geffken, Merlo,

Jacob, et al., 2007). Higher rates of family accommodation have been consistently associated with greater OCD symptom severity (Strauss et al., 2015; Wu et al., 2016). Further, multiple studies have identified the mediating role of family accommodation in the relationship between OCD symptom severity and parent-rated functional impairment (Caporino et al., 2012; Storch, Geffken, Merlo, Jacob, et al., 2007; Storch et al., 2012), with family accommodation facilitating the entrenchment of child OCD symptoms into a pattern of pervasive impairment. In doing so, family accommodation is thought to directly counter the goals of CBT by reducing obsessional anxiety in a way similar to ritual engagement, preventing anxiety habituation, diminishing the aversive consequences of OCD behavior, and reducing motivation for change (Garcia et al., 2010; Merlo et al., 2009; Storch, Geffken, Merlo, Jacob, et al., 2007).

## **The Coercive Cycle and OCD-Related Disruptive Behaviors**

Though family accommodation may be driven by multiple factors, including parents' own anxiety symptoms, guilt, worry, anger, long-term uncertainty, empathy and preferred consideration of the short- vs. long-term consequences of their actions (Caporino et al., 2012; Peris, Bergman, et al., 2008; Storch, Merlo, Larson, Geffken, et al., 2008), OCD-related disruptive behaviors have consistently been related to increased levels of OCD accommodation (Caporino et al., 2012; Lebowitz, Omer, et al., 2011; Lebowitz, Vitulano, Mataix-Cols, et al., 2011; Storch, Geffken, Merlo, Jacob, et al., 2007; Storch, Merlo, Larson, Geffken, et al., 2008; Storch, Lewin, et al., 2010; Storch et al., 2012). Similar to the "coercive cycle" exhibited in the interactions between parents and their children with only DBDs (Patterson, 1982), it has been proposed that children with comorbid OCD and OCD-related disruptive behaviors engage in escalating interactions with parents in which angry outbursts by the child motivate parents in attending to and accommodating OCD-related concerns (Lebowitz, Vitulano, & Omer, 2011). Possibly consistent with this assertion, researchers have observed the family environments of children and adults with OCD to be characterized by more hostile interactions and less warmth, problem solving, and rewarding of independence in the child (Barrett, Shortt, & Healy, 2002; Chambless, Bryan, Aiken, Steketee, & Hooley, 2001). However, because there have been no longitudinal studies to date examining the relationship between OCD-related coercive/disruptive behaviors and the quality of the family environment, the nature of the relationship between these factors remains unclear.

The aggressive and coercive outbursts displayed by children with OCD have been termed *rage attacks* by some researchers (e.g., Storch et al., 2012). Defined as “explosive anger outbursts that were grossly excessive or inappropriate to the situation” (Storch et al., 2012, p. 582), OCD rage attacks have received little empirical attention despite a survey of mental health professionals’ estimation that rage attacks occur in at least 25% of pediatric OCD cases (Lebowitz, Vitulano, Mataix-Cols, et al., 2011). A more recent survey of parents of youth with OCD (Storch et al., 2012) found a much higher incidence (54.7%) of rage episodes in the last week among a sample of 89 youth ( $M_{age} = 11.12$ ; range 6–16) who presented at an OCD specialty clinic. These episodes are typically characterized by aggression and/or noncompliance that is directed toward family members (e.g., parents, siblings) in an effort to escape or avoid obsessional triggers (McGuire et al., 2013; Storch et al., 2012; Taylor et al., 2014). Such aggression is often expressed verbally (e.g., swearing, making threats) and/or physically (e.g., hitting, grabbing, menacing; Storch et al., 2012) and may also come in the form of *emotional blackmail* through displays of extreme emotional/physical distress (e.g. crying and screaming, “You don’t love me”; Lebowitz, Vitulano, & Omer, 2011). Youth tend to view these behaviors as helpful means of avoiding distress or expressing frustration when parents do not yield to OCD-related demands (Caporino et al., 2012; Storch, Lewin, et al., 2010), and parents are more likely to accommodate when they believe that doing so will help prevent the child’s loss of behavioral and emotional control (Meyer et al., 2017). What often results is a spiral in which parents increasingly engage in accommodation to prevent or manage rage attacks, which subsequently reinforces future use of coercive and disruptive behaviors by the youth to encourage accommodation (Storch et al., 2012). Not surprisingly, parents’ daily home (e.g., morning, bedtime) and occupational routines are often disrupted by increasingly frequent and coercive demands for accommodation (Lebowitz, Omer, et al., 2011; S. E. Stewart et al., 2017).

## **Targeting OCD-Related Disruptive Behaviors in Treatment**

Given the potential impact of these bidirectional parent-child dynamics on overall family functioning, it is clear that both OCD-related coercive/disruptive behaviors and family accommodation are important targets in the delivery of OCD treatment. Reducing accommodation is an important process variable in CBT for OCD (Francazio et al., 2016; Merlo et al., 2009), and therefore coercive/disruptive behaviors may represent a challenge

for families attempting to reduce accommodations during treatment. Further, the aggressive and disruptive nature of such behaviors contributes to home environments characterized by hostility, blame, and low family cohesion (Langley et al., 2010; Peris, Benazon, et al., 2008; Storch et al., 2009), which are also associated with poorer response to treatment (Peris et al., 2012; Peris & Piacentini, 2014). Conversely, some research has shown that targeting disruptive behaviors in treatment can result in greater adherence to CBT protocol (Lehmkuhl et al., 2009; Owens & Piacentini, 1998) and larger reductions in symptom severity (Sukhodolsky et al., 2013). In one recent treatment study (Schuberth et al., 2018), reductions in coercive and disruptive behaviors predicted improvements in treatment outcomes overall and led to reductions in child- and family-level impairment above and beyond the effects of reducing accommodation and symptom severity. Together, these findings suggest that directly addressing OCD-related disruptive behaviors may facilitate and enhance the benefits of treatment via changes to the overall family system.

In light of the extant literature identifying OCD-related coercive/disruptive behaviors and subsequent family accommodation as important targets in the successful treatment of OCD, there is an urgent need for a comprehensive program that addresses the comorbid presentation of OCD with DBD symptoms. Parent Management Training (PMT), which focuses on teaching parents to provide contingent positive reinforcement and set clear expectations and limits, has been found to be the most successful form of intervention for DBDs in youth (Kaminski & Claussen, 2017; McMahon & Frick, 2019). Multiple types of PMT interventions have been developed for different age groups and presenting problems, with the overall goals of reducing the child's noncompliance and promoting positive behavior (e.g., Barkley, 2013; McMahon & Forehand, 2003; Webster-Stratton & Reid, 2018; Zisser-Nathenson et al., 2018). While these interventions are widely implemented and studied in addressing DBDs in the absence of OCD, there has generally been less attention on such approaches for children with co-occurring internalizing problems (i.e., OCD and other anxiety-based difficulties).

## **Parenting and Internalizing Problems**

A growing body of research has demonstrated a clear relationship between certain parenting practices and internalizing behaviors (Pinquart, 2017; Rose et al., 2018). *Authoritative* parenting styles, or those that incorporate warmth, responsiveness,

autonomy granting (i.e., encouraging children's expression and independent decision-making), and behavior-oriented control (i.e., communicating clear expectations for appropriate behavior, setting firm limits, and monitoring the child's behavior in relation to those limits) are typically associated with lower concurrent levels of internalizing problems (Eisenberg et al., 2009; Paulussen-Hoogeboom et al., 2008; Pinquart, 2017). Conversely, higher levels of internalizing symptoms have been associated with parenting that is more harsh/punitive (Edwards & Hans, 2015; Engle & McElwain, 2011; Pinquart, 2017; Rinaldi & Howe, 2012), more emotionally/psychologically coercive (Pinquart, 2017), more passive/lax (Guajardo et al., 2009; Williams et al., 2009), and/or more neglectful (Luyckx et al., 2011; Pinquart, 2017). The magnitude of these associations increases with the child's age and tends to be similar for both maternal and paternal parenting (Pinquart, 2017). Longitudinal studies also suggest that authoritative parenting styles uniquely contribute to decreases in children's internalizing pathology over time (Luyckx et al., 2011; Pinquart, 2017), whereas particularly hostile (e.g., corporal punishment) and/or psychologically manipulative parenting practices contribute to increases in these difficulties (Eisenberg et al., 2009; Pinquart, 2017). Further, children's internalizing symptoms have been associated with decreases in warm/authoritative parenting styles and increases in coercive or passive parenting styles over time, suggesting a bidirectional relationship (Pinquart, 2017). Parents of youth showing high levels of internalizing symptomology may therefore be at risk for developing more problematic parenting styles over time, which in turn may feed back into worsening the youth's internalizing problems.

Despite these insights regarding parents' influence on children's internalizing problems, parent-focused interventions have been utilized to address internalizing behavior far less than for disruptive behavior (Forehand et al., 2013). A recent randomized controlled trial (RCT) by Lebowitz and colleagues (2020) found that a parent-based intervention with no child-therapist contact, The SPACE Program (Supportive Parenting for Anxious Childhood Emotions), led to comparable reductions in general anxiety symptoms relative to a CBT program with no parent treatment components. It is important to note that The SPACE Program differs from PMT-based interventions in that it does not focus on teaching parents specific skills such as positive reinforcement or problem-solving in order to modify their children's behavior. Rather, its main goals are to teach parents how to respond more supportively to their anxious children and to reduce parental behaviors that serve to accommodate anxiety-related avoidance. To our knowledge, there

are currently no PMT-based interventions developed specifically to treat childhood OCD; however, existing research suggests that effective parenting interventions for childhood internalizing problems contain many similar key elements of PMT-based interventions (Cartwright-Hatton et al., 2011; Lyneham & Rapee, 2006; Rapee et al., 2006). Given the unique interaction between disruptive child behaviors and certain parenting practices (e.g., accommodation) that drives the maintenance and exacerbation of pediatric OCD, it is surprising that, to date, there is no parenting program specifically designed to treat the presentation of OCD-related disruptive behaviors in the course of standard OCD treatment.

## **Existing Research Incorporating PMT in OCD Treatment**

### ***Case Studies***

There are currently only four published case studies and one small clinical trial concerning the treatment of comorbid OCD and DBD symptoms. Owens and Piacentini (1998) presented a case study of an 8-year old boy with comorbid OCD, ADHD, and ODD. Although no formal PMT intervention was implemented, the authors highlighted the inclusion of contingency management and intensive maternal involvement in treatment as augmentations to their standard CBT protocol for OCD. They noted that including clear expectations and reinforcement of desirable behaviors in session were instrumental in allowing the patient to participate and benefit from his OCD therapy. While parents' ratings of the child's externalizing behaviors decreased post-treatment, they did not reach subclinical levels.

Lehmkuhl and colleagues (2009) described another case study involving the sequential implementation of a brief course of PMT prior to CBT with a 10-year-old girl presenting with comorbid OCD and disruptive behavior. The PMT intervention involved four sessions focused on psychoeducation regarding disruptive behaviors in OCD, differential attention to positive and disruptive behaviors, use of a token economy and behavioral consequences, and generalizing management strategies to other situations. There were reductions in OCD severity, family accommodation, and ratings of externalizing behaviors, as well as improvements in family harmony and parents' perceptions of competence in providing discipline and aiding in OCD treatment.

Similarly, Ale and Krackow (2011) presented a case study of a 6-year-old boy with comorbid OCD and ODD. Treatment of disruptive behavior occurred concurrently with OCD treatment, and also included PMT and intensive involvement of the family in treatment. This intervention similarly incorporated differential attention, clear household expectations, a token economy, and time out for noncompliance and aggression; however, the strategies were presented alongside E/RPs and other OCD-focused efforts. Post-treatment assessments indicated reductions of disruptive behaviors and OCD symptom severity to the sub-clinical range. While they also reported a clinically significant increase in OCD symptom severity at a 3.5-month follow-up assessment, the authors attributed this rebound to a failure to establish the importance of continued E/RP exercises beyond active treatment and the generalization of these skills to newly emerging symptoms.

Most recently, Ale and Whiteside (2016) published a case study of a 9-year-old girl presenting with a mixture of disruptive behaviors that were both OCD-driven (i.e., behavior-avoidant) as well as independent of anxiety. In this case, the authors described a developmental course in which the child's disruptive behaviors emerged as a means to avoid OCD-related triggers but later generalized for the purpose of gaining attention and access to preferred things. Treatment was delivered in 15 sessions over 8 weeks and was structured in four phases: (1) parent psychoeducation, (2) skills acquisition and practice, (3) problem-solving parenting skills and progressively challenging E/RPs, and (4) exposure skills generalization and relapse prevention. The first two sessions were parent only and centered on psychoeducation regarding behavioral principles, monitoring, delivering commands, and differential attention, as well as preparation for the parent's role in supporting the child through the remaining course of treatment. All subsequent sessions were held jointly with child and parent and involved psychoeducation and/or exposure exercises along with in-session modeling/coaching of behavioral management strategies. Post-treatment assessments indicated significant reductions in disruptive behaviors, family accommodation, and OCD symptom severity to the subclinical range. The authors underscored the importance of working directly with parents to develop PMT skills prior to the implementation of E/RPs when noncompliance and other disruptive behaviors interfere with directly addressing OCD symptoms.

## ***Clinical Trial***

The only study to date incorporating CBT and PMT for comorbid OCD and DBDs in an experimental trial was reported by Sukhodolsky and colleagues (2013) in a 6-subject design. After conducting 4 weeks of baseline assessments of OCD severity and reported levels of disruptive behaviors, five boys and one girl, aged 9–14 years ( $M_{age} = 13$ ) were randomized to either 6 weekly sessions of PMT (Barkley, 1997; Barkley et al., 1999) followed by 12 weekly sessions of CBT with E/RPs (PMT+E/RP condition) or 6 weeks of a waitlist followed by 12 weeks of CBT with E/RPs (E/RP-only condition). Post-intervention assessments indicated that the largest reduction in OCD severity was seen in the PMT+E/RP condition, but disruptive behavior was similarly reduced in both groups. The authors concluded that while PMT serves to both reduce disruptive behavior and enable parents to engage children in home E/RP practice, CBT alone may also serve to reduce ratings of disruptive behavior through psychoeducation about OCD. Given the significant difference in reductions of OCD severity between groups, the authors concluded that parents of children in the E/RP-only condition were less skilled in overcoming noncompliance and were therefore less able to promote adherence to home E/RP tasks.

Although the findings of these few studies are suggestive for the addition of PMT techniques in standard CBT intervention for pediatric OCD with significant comorbid disruptive behavior problems, additional research is warranted. In particular, it is difficult to draw firm conclusions regarding the relative benefits of PMT for families receiving CBT-based treatment for pediatric OCD given the methodological and statistical limitations inherent in case studies and small (i.e., 6-subject) clinical trials. Examining larger samples of affected youth, as well as parent and child factors related to the maintenance of OCD and disruptive behavior severity, are necessary to establish the incremental utility of PMT in treating OCD and disruptive behavior in children with OCD.

## **The Current Study**

The current study is an open pilot trial examining the efficacy of a PMT-based augmentation to CBT in addressing coercive and disruptive behaviors, as well as other relevant outcomes, in a community sample of families referred to group OCD treatment. This research builds upon previous treatment studies aimed at reducing disruptive

behavior and OCD symptom severity in youth with comorbid OCD and disruptive behavior problems.

As previous studies have assessed the presence and reduction of disruptive behavior with general measures of disruptive and noncompliant behavior (e.g., Child Behavior Checklist; Achenbach & Rescorla, 2001), they have fallen short in capturing the coercive and disruptive behaviors unique to pediatric OCD. Lebowitz, Omer, and colleagues (2011) developed an 18-item checklist of such behaviors (Coercive and Disruptive Behavior Scale – Pediatric OCD; CD-POC), including demands to perform actions for the child (e.g., daily laundering of clothes and bedding, repeated answering of assurance-seeking questions), imposing rigid rules in the household (e.g., forbidding the use of certain triggering words or objects at home), and other intrusive behaviors (e.g., forced physical closeness, ritualized contact). Because of the atypical nature of these behaviors in traditional conceptualizations of disruptive behavior, it is likely that past research targeting DBD symptoms in this population has overlooked a wide range of coercive behaviors that cause significant disruption in the family life of children with OCD.

The current study also expands upon previous research investigating the child- and family-level processes that may increase risk for the exacerbation and maintenance of OCD and disruptive behavior severity. The inclusion of parents in interventions for internalizing difficulties has generally been found to be effective in reducing children's internalizing pathology; however, prior studies have failed to report change in parenting attitudes and behaviors as a function of the intervention itself (Forehand et al., 2013). For example, although family accommodation is known to reinforce expressions of disruptive behavior as well as overall OCD symptom severity and related impairment, less is understood regarding the attitudes of parents towards their children's behaviors, how they may change in response to a targeted intervention, and how these processes may relate to how youth and their parents respond to treatment overall. Recent research has identified a relatively large number of characteristics that may predict response to group and individual CBT for pediatric OCD (e.g., Lavell et al., 2016; Turner et al., 2018); however, it is unclear whether these factors may similarly predict response to CBT augmented with PMT. Further, previous research aimed at identifying predictors of treatment response has generally taken a narrow focus by limiting the conceptualization of treatment outcome to OCD symptom severity (Lavell et al., 2016; Turner et al., 2018). Given the complex interpersonal and behavioral dynamics that appear to underlie the

entrenchment of OCD-related impairment, such limited scope precludes a complete understanding of how treatment may translate to global benefits for youth and their families. As such, the present research incorporates empirically supported child- and family-level characteristics, as well as the quality of participants' participation in the intervention process itself (e.g., session attendance/engagement, homework completion), in predicting a broad set of outcomes among a large, diverse sample of youth receiving group CBT, whose parents are concurrently receiving group CBT (i.e., family-based treatment) augmented with PMT.

Finally, the current study explores an alternative CBT format (CBT+PMT) by including four additional sessions of PMT throughout the course of a 12-week group family-based CBT program. Previous studies have included PMT before (Lehmkuhl et al., 2009; Sukhodolsky et al., 2013) or during (Ale & Krackow, 2011; Ale & Whiteside, 2016; Owens & Piacentini, 1998) the course of individual-based CBT treatment. This approach has typically been in an effort to increase youths' compliance with E/RP homework assignments and to reduce other disruptive behaviors that might interfere with the completion of the CBT protocol. While the results of these studies encourage further research adopting a similar approach, no study to date has examined efficacy of the combined delivery of CBT+PMT in a group family-based format. From a practical perspective, exploring alternative formats of delivery may afford clinicians more freedom in implementing CBT+PMT on a larger and less costly scale. As past research has identified comparable treatment response rates for individual- and group-based delivery of both CBT for pediatric OCD (Rosa-Alcázar et al., 2015) and PMT for DBDs (Michelson et al., 2013), a group-based CBT+PMT format is likely a feasible alternative for mental health clinics with a high volume of clients and limited clinical staff. Moreover, although family-based OCD treatment has been shown to remain effective when delivered in a group format (Barrett et al., 2004; Farrell et al., 2012; Lavell et al., 2016; Martin & Thienemann, 2005; Selles et al., 2017), family involvement has generally been understudied in conjunction with group-based treatment approaches (Freeman, Garcia, et al., 2014; McGrath & Abbott, 2019).

## Research Questions

1. Does CBT+PMT result in statistically significant improvements in typical treatment outcomes (i.e., OCD symptom severity, coercive/disruptive behaviors, OCD-related impairment, family accommodation) as well as other parenting factors (i.e., parenting practices, sense of parenting competence, and tolerance of children's distress)?
2. Does CBT+PMT result in significantly greater change in outcomes compared to those yielded by CBT-Only?
3. Can pre-treatment characteristics predict treatment response on *primary* outcomes, utilizing the entire sample? In addition, can pre-treatment characteristics and quality of PMT participation (i.e., attendance, engagement, and homework completion) predict treatment response on *parent* outcomes, utilizing the CBT+PMT sample?

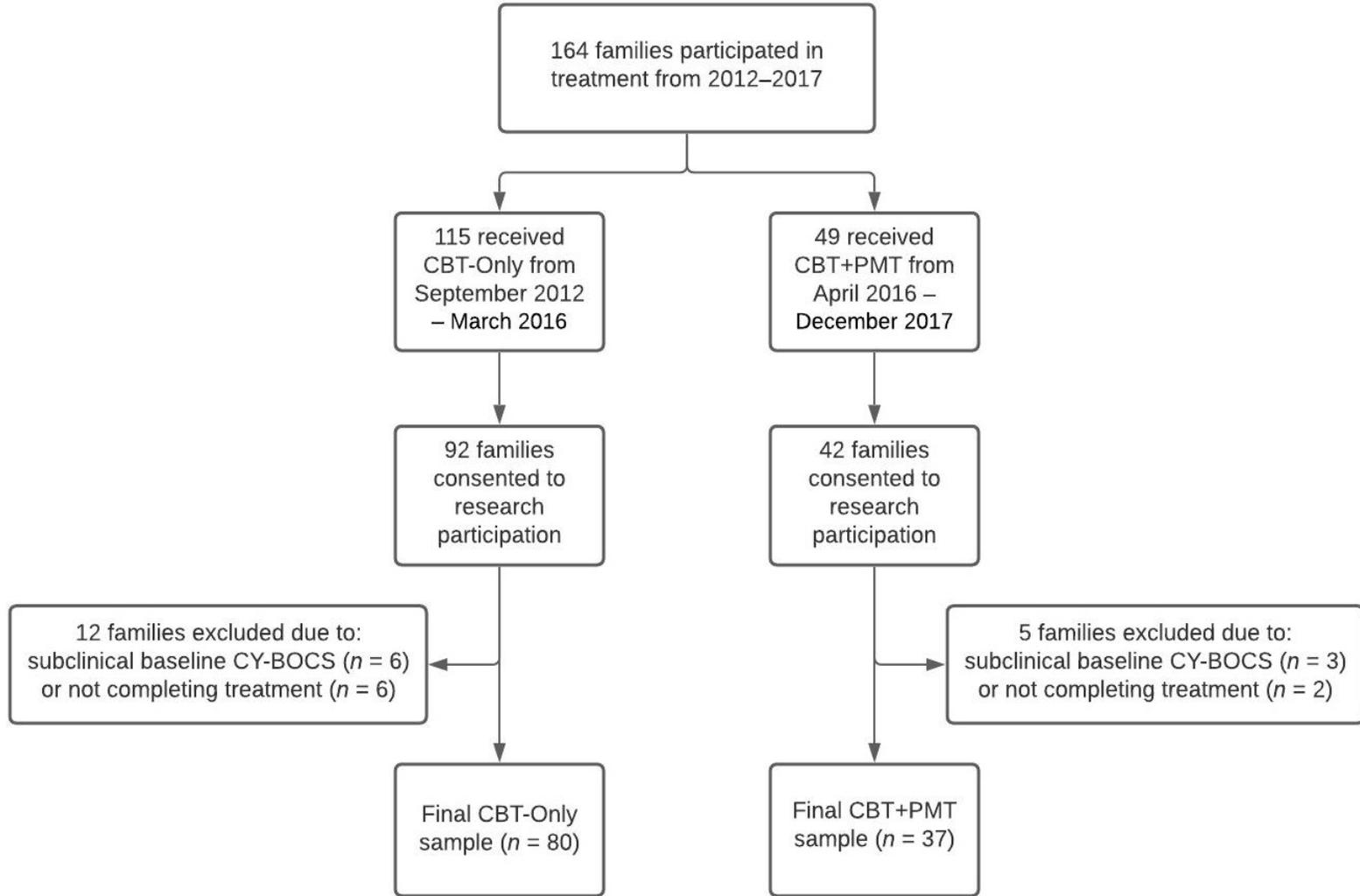
## Chapter 2. Method

### Sample

The present sample was selected from a pool of consecutive patients referred for assessment at the British Columbia Children's Hospital (BCCH) Provincial OCD Program (POP), a hospital-based outpatient specialty program for the assessment and treatment of OCD-affected youth. Youth screened at the POP between 2011 and 2017 (age 7–18 years), who had a primary diagnosis of OCD (i.e., according to DSM-IV or DSM-5 criteria) and were deemed suitable for group participation (e.g., able to cognitively, developmentally, and behaviorally engage in group materials; did not present a high-risk for increasing suicidal or parasuicidal behaviors upon treatment initiation; had at least one parent able to attend sessions), were invited to participate in a 12-week, group family-based treatment program. Parents provided written consent and youth provided written assent to allow de-identified treatment information to be used for research purposes. Procedures for the initial intervention trial were approved by the University of British Columbia (UBC) Research Ethics Board, and secondary data analysis procedures were approved by the Simon Fraser University (SFU) Research Ethics Board. Refer to Figure 1 for a summary chart of sample selection.

Of the 164 families who completed group treatment between 2012 and 2017, a total of 117 met study inclusion criteria, completed treatment, and consented to research participation. Families were eligible for the current study if the youth's pre-treatment severity rating on the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS; Scahill et al., 1997) fell above the subclinical or mild range (i.e.,  $\geq 16$ ). Families participating in treatment from September 2012 through March 2016 ( $n = 115$ ) received only the 12-week group-family CBT program. A total of 11 consecutive cohorts received CBT-Only, with enrollment of the concurrent child and teen groups within each cohort ranging from 3–6 families per group. Within the CBT-Only group, 23 families did not consent to the collection and use of treatment data for research purposes. Six families were excluded from the current study due to youths' pre-treatment symptom severity ratings falling within the subclinical or mild range (i.e., CY-BOCS  $< 16$ ), and six additional families did not complete treatment. A total of 80 families met inclusion criteria, consented

**Figure 1**      **Sample Selection Flow Chart**



*Note.* CBT = cognitive-behavioral therapy; PMT = parent management training; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale

to research participation, and completed the un-augmented treatment program (i.e., CBT-Only) and were thus included in the current study.

### ***CBT+PMT Program***

Families who participated in treatment from April 2016 through December 2017 ( $n = 49$ ) received the augmented group treatment protocol that included an additional four sessions of PMT. Five consecutive groups received CBT+PMT, with enrollment ranging from 5–12 families per cohort. Among the families participating in the augmented treatment program, seven did not consent to the use of treatment data for research purposes. Three families were excluded due to subclinical or mild CY-BOCS scores at pre-treatment. As well, two families did not complete the program; one family discontinued the program after it was determined that OCD was not a current presenting problem, and one family was removed from the program due to youth disruptive behavior that interfered with group program delivery. A total of 37 families met inclusion criteria, consented to research participation, and completed the augmented treatment program and were thus included in the current study.

### ***Data Collection***

All parents involved in the treatment groups provided data for the current study via Research Electronic Data Capture (REDCap; Harris et al., 2009) tools hosted at the BC Children's Hospital Research Institute (BCCHR), with separate reports collected for each parent who attended groups. REDCap is a secure, web-based application designed to support data capture for research studies, providing: (1) an intuitive interface for validated data entry, (2) audit trails for tracking data manipulation and export procedures, (3) automated export procedures for seamless data downloads to common statistical packages, and (4) procedures for importing data from external sources. Refer to Table 1 for a summary of all measures used, as well as the data collection schedule. For families in which both parents independently completed a particular questionnaire, a mean score was used for analyses.

**Table 1 Measure and Data Collection Summary**

Participant characteristics	Measure	Reporter(s)	Time(s) Collected			
			Intake	Pre-Tx	Post-Tx	FU
Demographics & family history	REDCap	Parent	✓			
Primary & comorbid diagnoses	ADIS-IV	R/P, R/C	✓			
<b>Primary treatment outcomes</b>						
OCD symptom severity	CY-BOCS	R/C		✓	✓	✓
OCD-related coercive-disruptive behaviors	CD-POC	Parent		✓	✓	✓
OCD-related impairment – child	COIS-R	Parent		✓	✓	✓
OCD-related impairment – family	OFF	Parent(s)		✓	✓	✓
Family accommodation	FAS	Parent		✓	✓	✓
<b>Parenting outcomes</b>						
Parenting practices (parental involvement, positive parenting, and inconsistent discipline)	APQ	Parent(s)		✓	✓	✓
Parent sense of competence	PSOC	Parent(s)		✓	✓	✓
Parent tolerance of child distress	PT-OCD	Parent(s)		✓	✓	✓
<b>Treatment evaluation</b>						
PMT treatment satisfaction & participant feedback	Questionnaire/ Focus Group	Parent(s)			✓	

*Note.* OCD = obsessive-compulsive disorder; PMT = parent management training; REDCap = Research Electronic Data Capture; ADIS-IV = Anxiety Disorders Schedule for DSM-IV; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale; APQ = Alabama Parenting Questionnaire; PSOC = Parenting Sense of Competence Scale; PT-OCD = Parent Tolerance of Child Distress Scale; Intake = initial intake assessment; Pre-Tx = pre-treatment (0 weeks); Post-Tx = post-treatment (12 weeks); FU = 1-month follow-up (~16 weeks); R/P = clinician-rated parent report; R/C = clinician-rated child report.

## Measures

### *Participant Characteristics*

**Child/Family Characteristics and Treatment History.** Parents completed online questionnaires via REDCap regarding youths' basic demographic information, including age, gender, and ethnicity, as well as family characteristics, including intactness and parents' level of education. Parents also provided information regarding the history of their child's OCD (e.g., age of onset, history of CBT and pharmacotherapy treatment) as well as the history of OCD in immediate and extended family.

**Primary and Comorbid Diagnoses.** The Anxiety Disorders Interview Schedule for DSM-IV – Child and Parent Interview Schedule (ADIS-IV; Silverman & Albano, 1996) was used to confirm primary OCD diagnoses and the presence of comorbid diagnoses at pre-treatment. The ADIS-IV is a clinician-administered, structured diagnostic interview that assesses the presence and severity of anxiety disorders as well as other common childhood conditions. Ph.D.-level psychologists and pediatric psychiatrists conducted interviews with youth and their parents during their initial clinic intake assessments. Psychometric properties for the ADIS-IV, including interrater reliability, test-retest reliability, and concurrent validity, are excellent (Silverman et al., 2001; Wood et al., 2002).

### *Primary Treatment Outcomes*

**OCD Symptom Severity.** The CY-BOCS (Scahill et al., 1997) is a clinician-administered, semi-structured measure of the presence and severity of OCD symptoms in youth. The CY-BOCS is composed of a detailed symptom checklist that assesses for specific obsessions and compulsions, as well as 10 items that assess various aspects of OCD severity using a 5-point scale. Items include: "How much time do you spend thinking about obsession in a day?", "How much do these thoughts bother or upset you?", and "How much do these habits get in the way of school or doing things with your friends?" A total severity score combining obsessive and compulsive symptom severity ratings was used in the current study, with higher scores indicating greater overall OCD symptom severity. Refer to Appendix A.1 for a summary of measure instructions, prompts, response format, items, and scoring information. Clinician ratings were collected via youth interview

at pre- and post-treatment, as well as at 1-month follow-up. The CY-BOCS has demonstrated excellent reliability and validity (Gallant et al., 2008; Lewin, Piacentini, et al., 2014; Storch et al., 2006) and is considered the gold-standard in pediatric OCD assessment (Lewin & Piacentini, 2010). Internal consistency of CY-BOCS items was acceptable to excellent at all time points in the current study ( $\alpha = .78 - .93$ ).

**OCD-Related Coercive-Disruptive Behaviors.** The CD-POC (Lebowitz, Omer, et al., 2011) is an 18-item, parent-report measure of coercive and disruptive behaviors commonly found among youth with OCD. Items are rated on a five-point Likert scale ranging from 0 (*never typical of my child*) to 4 (*almost always typical of my child*). Items include: “Force you to behave in certain ways or forbid you to do certain things because of extreme pickiness (e.g., forbids certain foods in the home, demands specific clothes always be ready)”; “Repeat actions or words many times and demand that others listen or attend to him/her until he/she feels it’s enough”; and “Impose rules or behaviors on others due to tactile or other sensitivity and react to disobedience with rage or violence (e.g., forbids certain sounds, demands specific temperature settings).” Items are summed to create a total score, with higher scores indicating greater amount of OCD-related coercive and disruptive behaviors. Refer to Appendix A.2 for a summary of measure instructions, response format, items, and scoring information. Parents’ responses were collected at pre- and post-treatment as well as at 1-month follow-up. Psychometric properties of the CD-POC are reported to be adequate (Lebowitz, Omer, et al., 2011). Internal consistency of CDPOC items was good at all time points in the current study ( $\alpha = .84 - .88$ ).

**OCD-Related Impairment – Child.** The Child Obsessive Compulsive Impact Scale – Revised (COIS-R; Piacentini et al., 2007) is a 33-item questionnaire designed to assess the impact of OCD symptoms on the psychosocial functioning of clinic-referred children and adolescents in the home, social, and academic environments. Parents were asked to rate how much difficulty their child has had completing various activities due to his or her OCD symptoms during the last month. Items were prompted with the question, “How much trouble has your child had doing the following things because of his/her OCD?” with items including: “Doing fun things during recess or free time”, “Getting to school on time in the morning”, and “Making new friends.” Each item is scored on a 4-point Likert-type scale ranging from 0 (*not at all*) to 3 (*very much*). Refer to Appendix A.3 for a summary of measure instructions, response format, items, and scoring information. A total score

was generated, with higher scores suggesting greater OCD-related impairment in child functioning. Parents' responses were collected at pre- and post-treatment, as well as at 1-month follow-up. The psychometric properties of the COIS-R are reported to be adequate (Piacentini et al., 2007). Internal consistency of COIS-R items was excellent at all time points in the current study ( $\alpha$ s = .93 – .94).

**OCD-Related Impairment – Family.** The OCD Family Functioning Scale (OFF; S. E. Stewart et al., 2011, 2017) is a 42-item self-report questionnaire designed to assess the impact of OCD symptoms on family functioning across three domains: overall family impairment, symptom-specific impairment, and impairment related to fulfillment of family roles. Only items from the Family Functional Impairment subscale (Part 1; 21 items) were used in the current study. For each item, parents were asked to report on frequency of OCD-related impairment on a scale between 0 and 3 (0 = *never*, 1 = *monthly*, 2 = *weekly*, 3 = *daily*). Items include: “How often does your child’s OCD interfere with family morning routines?”; “How often does your child’s OCD impact the social life of other family members without OCD?”; and “When OCD has interfered with family functioning, have you felt frustrated/angry?” Refer to Appendix A.4 for a summary of measure instructions, response format, prompts, items, and scoring information. Items were summed to generate a total score, with higher scores indicating a greater level of overall OCD-related impairment in family functioning. Mothers’ and/or fathers’ responses were collected independently at pre- and post-treatment, as well as at 1-month follow-up. Psychometric properties of the OFF are reported to be adequate (S. E. Stewart et al., 2011, 2017). Internal consistency of OFF items was excellent at all time points in the current study ( $\alpha$ s = .91 – .94).

**Family Accommodation.** Family accommodation was assessed by parent report using the clinician-report version of the Family Accommodation Scale (FAS; Calvocoressi et al., 1999). The FAS is a set of 12 items that measure the degree to which family members accommodated a child’s obsessive-compulsive symptoms over the last week (8 items), as well as the level of distress and impairment that family members and the youth experience as a result of parental accommodation to the child (4 items). Items include: “On how many occasions did you provide reassurance?”, “On how many occasions did you facilitate compulsions?”, and “To what extent did you modify your personal routine?” Responses are scored on a scale ranging from 0 to 4 (0 = *none or not applicable*, 1 = *once*, 2 = *2–3 times*, 3 = *4–6 times*, 4 = *every day*). Items are summed to

create a total score, with greater scores reflecting higher levels of family accommodation. Refer to Appendix A.5 for a summary of measure instructions, response format, prompts, items, and scoring information. Parents' responses were collected at pre- and post-treatment, as well as at 1-month follow-up. These family accommodation items have been used frequently and have demonstrated good internal consistency, convergent validity, and treatment sensitivity (Calvocoressi et al., 1999; Storch, Geffken, Merlo, Jacob, et al., 2007). Internal consistency of family accommodation items ranged from good to excellent at all time points in the current study ( $\alpha$ s = .86 – .91).

### ***Parenting Outcomes***

**Parenting Practices.** The Alabama Parenting Questionnaire (APQ; Shelton et al., 1996) is a 42-item, parent-report measure of effective parenting practices across five domains: (1) positive involvement with children, (2) use of positive discipline techniques, (3) supervision and monitoring, (4) consistency in the use of such discipline, and (5) use of corporal punishment. Mothers' and fathers' responses were collected independently at pre- and post-treatment and at 1-month follow-up. Ratings of the items are made on a 5-point Likert scale ranging from 0 (*never*) to 4 (*always*), with higher total domain scores indicating greater levels of the domain construct. Items include: "You threaten to punish your child and then do not actually punish him/her", "You compliment your child when he/she does something well", and "You yell or scream at your child when he/she has done something wrong." Refer to Appendix A.6 for a summary of measure instructions, response format, items by scale, and scoring information. Only the Parental Involvement (10 items), Positive Parenting (6 items), and Inconsistent Discipline (6 items) scales were used in the current study. Psychometric properties of the APQ are reported to be excellent (Essau et al., 2006; Frick et al., 1999). Internal consistency of APQ items was acceptable to good for Parental Involvement ( $\alpha$ s = .66 – .83), Positive Parenting ( $\alpha$ s = .70 – .85), and Inconsistent Discipline ( $\alpha$ s = .65 – .87) subscales at all time points in the current study.

**Parent Sense of Competence.** The Parenting Sense of Competence Scale (PSOC; Gibaud-Wallston & Wandersman, 1978; Johnston & Mash, 1989) is a 16-item, self-report measure of parents' impression of their own abilities as a parent. Ratings of the items are made on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher ratings reflecting a greater sense of competence. Principal-

components analysis of the PSOC (Johnston & Mash, 1989) has identified two factors: Satisfaction (9 items), an affective dimension reflecting parenting frustration, anxiety, and motivation; and Efficacy (7 items), an instrumental dimension reflecting competence, problem-solving ability, and capability in the parenting role. Items include: “Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age”; “I meet my own personal expectations for expertise in caring for my child”; and “A difficult problem in being a parent is not knowing whether you’re doing a good job or a bad one.” Refer to Appendix A.7 for a summary of measure instructions, response format, items, and scoring information. Mothers’ and fathers’ responses were collected independently at pre- and post-treatment, as well as at 1-month follow-up. Items were summed to create a composite score, with higher scores indicating a greater sense of competence in parenting. Psychometric properties of the PSOC are reported to be adequate (Johnston & Mash, 1989). Internal consistency of PSOC items was good to excellent at all time points in the current study ( $\alpha$ s = .85 – .92).

**Parent Tolerance of Child Distress.** The Parent Tolerance of Child Distress Scale (PT-OCD) is a 15-item, parent-report scale adapted from the Distress Tolerance Scale (DTS; Simons & Gaher, 2005). Respondents rate items on a 5-point Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*), with higher scores reflecting a greater ability to tolerate emotional distress in their child. Items include: “My child’s distress or upset is unbearable to me”; “I’ll do anything to avoid my child feeling distressed or upset”; and “When my child feels distressed or upset, I must do something about it immediately.” Refer to Appendix A.8 for a summary of measure instructions, response format, items, and scoring information. Mothers’ and fathers’ responses were collected independently at pre- and post-treatment, as well as at 1-month follow-up. Psychometric properties of the DTS are reported to be adequate (Simons & Gaher, 2005). Internal consistency of PT-OCD items was good to excellent at all time points in the current study ( $\alpha$ s = .85 – .90).

## **Intervention Procedures**

The treatment program offered through the BCCH-POP clinic consists of a manualized, 12-session, group-based CBT program for youth with OCD (OCD is Not the Boss of Me!; see McKenney et al., 2020; Selles et al., 2017). For the majority of each 90-

minute session, children (age 8–12/13) and adolescents (age 13–18) participated in separate, concurrent groups focused on psychoeducation about OCD, learning CBT and other coping skills (e.g., relaxation, coping statements), practicing E/RP exercises (e.g., in-vivo, imaginal, and/or interoceptive), and reviewing weekly homework. Parents attended parallel sessions in a group-based CBT program for parents of youth receiving treatment for OCD (OCD is Not the Boss of My Family!; see McKenney et al., 2020; Selles et al., 2017). Parent sessions included psychoeducation regarding OCD and its effects on the family, as well as specific techniques that may be employed to limit accommodation and promote children’s success in treatment (e.g., reward systems for completing E/RP exercises). Additional coping skills were taught to parents, and parents were given the opportunity to share their stories and provide each other with support. The final 15–30 minutes of each session were utilized for individual E/RP homework planning and problem solving within each family.

The 37 eligible families who participated in CBT+PMT groups from 2016 through 2017 were notified prior to the start of treatment that parents would be required to attend four additional 90-minute PMT sessions throughout the 12-week CBT protocol. With the exception of one group, all parents participated in PMT sessions on a separate day of the week during Weeks 1, 4, 7, and 10 of CBT treatment. PMT Sessions were distributed evenly throughout the CBT protocol in order to provide families with continued support regarding PMT skill instruction and development as they completed CBT. Further, content for each PMT session was structured to complement the content (e.g., skill instruction and development) for the corresponding week’s CBT session. Parents also completed brief (i.e., maximum 15 minutes in duration) phone check-ins to consult on session homework progress during weeks when PMT sessions were not held (typically Weeks 2, 3, 5, 6, 8, 9, and 11). For the group beginning in September 2016, parents completed PMT Session 3 during Week 8 of treatment (and a phone check-in was completed during Week 7), as the typical PMT session day for Week 7 fell on a statutory holiday. Because four families within the CBT+PMT group were required to travel long distances (i.e., 2 to 3 hours) in order to attend weekly CBT sessions, these parents were offered the opportunity to attend PMT sessions via telehealth services. As such, the parents of three families attended all PMT sessions via videoconferencing software, and the parents of one family attended PMT sessions via speakerphone.

## ***How CBT+PMT Differs from CBT-Only Treatment***

The PMT component of the augmented group differed from the parenting material in the standard CBT group in a number of ways. PMT session content was largely modeled after Barkley's PMT model (Barkley, 2013; Barkley & Robin, 2014)<sup>1</sup>, as it is designed to be implemented with both children and adolescents. The augmented group included psychoeducation regarding the basic foundations of behaviorism (e.g., antecedent, behavior, consequence; positive vs. negative reinforcement; differential attention) and how they apply within an OCD context. Psychoeducation regarding OCD-related disruptive behaviors was also presented in more depth, including explicit reference to the behavioral processes underlying common parent-child dynamics (e.g., the coercive cycle; Patterson, 1982) and how they serve to entrench OCD-related impairment within the family system. More explicit attention was also given to teaching specific behavioral skills for parents in managing their child's disruptive behaviors (e.g., giving effective commands) and addressing barriers to treatment success (e.g., collaborative troubleshooting). The augmented group also included components focused on extending PMT skills to settings outside of the home (e.g., school, public places). Importantly, the augmented group dedicated session time to PMT skill acquisition through guided role-playing activities and included regular homework assignments and individualized consultation specifically aimed at supporting PMT skill development.

### ***Session Content***

Refer to Table 2 for a summary of PMT session content and homework assignments. Session content was primarily delivered by the study's principal investigator, and each session was co-facilitated by one POP clinician (e.g., psychiatrist, registered psychologist, or registered clinical social worker). Prior to implementing the augmented program, session co-facilitators were trained through a guided reading of the CBT+PMT manual and multiple discussions regarding treatment concepts and components. Co-facilitators were responsible for monitoring *treatment fidelity* (i.e., the skilled delivery of an intervention according to treatment principles and objectives; Forgatch et al., 2005) by observing and recording the implementation of each group's key learning objectives via a

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<sup>1</sup> Small amounts of additional material were adapted from McMahon and Forehand (2003).

detailed checklist. The main content and learning objectives for each PMT session were as follows:

**Session 1.** The first session (week 1) introduced participants to the content and overview of the treatment program. Learning objectives included: (1) psychoeducation regarding social learning theory and how it relates to parenting youth with coercive and disruptive behavior problems; (2) setting up a more structured environment at home and, if indicated, at school; and (3) the effective use of reinforcement by attending to and praising positive and desirable behaviors. Instructional content for the session included modeling of effective praise with the group co-facilitator, and practicing delivering praise in group role-playing exercises. Homework for the following weeks included self-monitoring parents' use of praise, as well as monitoring children's behavior in response to parent behaviors.

**Session 2.** The second session (week 4) focused primarily on contingency management in the home. Learning objectives included: (1) how to deliver effective commands in order to increase the likelihood of compliance; (2) differential attention to desirable behavior and how/when to effectively ignore problem behavior; and (3) designing and maintaining effective structured reward systems (i.e., incentive charts, token economy) in the home. Instructional content for the session included modeling of delivering effective commands and ignoring with the group co-facilitator, as well as practicing delivering commands and ignoring problem behaviors in group role-playing exercises. As the concept of reward systems was introduced in a previous CBT session with parents, the goal of this session was to generalize the use of reward systems to desirable behaviors other than youths' adherence to weekly E/RP homework assignments. Homework for the following weeks included self-monitoring the use of effective commands and ignoring, as well as monitoring consistency and success in the use of structured reward systems.

**Session 3.** The third session (week 7) included a review of parents' success with differential attention and reward systems over the past weeks. Additional session content focused on strategies for how to increase the effectiveness of these tools, as well as when and how it is appropriate to collaboratively implement consequences in response to undesirable behaviors. Learning objectives included: (1) troubleshooting issues with the

**Table 2 Overview of PMT Session Content and Homework Assignments**

Session	Topics/Activities	Homework Assignment(s)
1	<ul style="list-style-type: none"> <li>• Introduction to behavior management (“OK” vs. “Not OK” OCD behaviors)</li> <li>• The “ABCs” of behavior</li> <li>• Positive vs. negative reinforcement</li> <li>• Praising “OK” behaviors</li> <li>• Praise role-play</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor 1–3 “OK” behaviors (antecedent, behavior, response)</li> <li>• Practice delivering praise for “OK” behaviors</li> <li>• Monitor 1–3 “Not OK” behaviors (antecedent, behavior, response)</li> </ul>
2	<ul style="list-style-type: none"> <li>• The coercive cycle of OCD</li> <li>• Effective communication &amp; giving instructions</li> <li>• Differential attention &amp; ignoring “Not OK” behaviors</li> <li>• Ignoring role-play</li> <li>• Structured reward systems</li> </ul>	<ul style="list-style-type: none"> <li>• Continue monitoring 1–3 “Not OK” behaviors</li> <li>• Incorporate 1–3 “OK” behaviors into structured reward system</li> </ul>
3	<ul style="list-style-type: none"> <li>• Introduction to troubleshooting</li> <li>• Steps of troubleshooting</li> <li>• Troubleshooting demonstration &amp; role-play</li> <li>• Disengaging &amp; safety plans</li> <li>• Behavioral contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Continue reinforcing 1–3 “OK” behaviors in structured reward system</li> <li>• Complete one troubleshooting chart with child</li> <li>• Develop one behavior contract with child</li> </ul>
4	<ul style="list-style-type: none"> <li>• Moving forward</li> <li>• Managing behavior in public</li> <li>• Coordinating with teachers</li> <li>• Reflecting back &amp; looking forward</li> <li>• Closing thoughts</li> </ul>	<ul style="list-style-type: none"> <li>• Continue reinforcing 1–3 “OK” behaviors in structured reward system</li> <li>• Practice managing one “Not OK” behavior in public</li> <li>• Identify one remaining “Not OK” behavior and implement 1 unused strategy</li> </ul>

implementation and/or maintenance of differential attention and reward systems applied during the previous 3 weeks; (2) effective ways to collaboratively problem solve with youth regarding conflict that interferes with maintenance of reward systems; and (3) constructing behavioral contracts with youth and collaboratively designing parent and child expectations, as well as consequences (e.g., not receiving a reward, losing a privilege) for breaching agreements. Parents were given the opportunity to share suggestions with other group members regarding their difficulties and successes in implementing and maintaining reward systems. Instructional content for the session included modeling of collaborative problem solving and negotiating behavioral contracts with the group co-facilitator, and parents practicing these skills in group role-playing exercises.

**Session 4.** The final session (week 10) focused on continued troubleshooting of differential attention and structured reward systems in the home, as well as exploring ways to generalize these skills to future conflicts that might arise after the completion of group treatment. Learning objectives included: (1) troubleshooting issues with the successful implementation and/or maintenance of differential attention and reward systems; (2) reviewing and summarizing the topics covered over the past weeks, and clarifying materials and/or addressing parents' confidence in the strategies learned thus far; and (3) brainstorming future situations in which to generalize the skills learned in group (e.g., managing misbehavior in public/at school, how to adjust reward systems over time once behavior is consistent). Any remaining concerns were addressed collaboratively with the group. Parents ended the group session with a celebration of their efforts and a reflection on what they had gained through participation. Parents were encouraged to continue implementing these strategies for the remaining 2 weeks of CBT treatment.

## **Parent PMT Session Attendance, Engagement, and Homework Completion**

Parental attendance at session was recorded, including whether one or both (if applicable) parents were present at each of the PMT sessions. Parents' engagement in PMT sessions was rated by consensus between PMT session co-facilitators. Engagement ratings were made on 4-point scale ranging from 1 to 4 (1 = *not very engaged*, 2 = *somewhat engaged*, 3 = *mostly engaged*, 4 = *completely engaged*). Parents' completion of each week's PMT homework assignment(s) was rated at the end of each respective week by the principal investigator during phone check-ins and PMT sessions. Homework

completion ratings were made on a 3-point scale ranging from 0 to 2 (0 = *did not complete*, 1 = *partially completed*, 2 = *fully completed*).

## **Treatment Satisfaction and Parent Feedback**

Treatment evaluation questionnaires were completed by parents after the completion of PMT sessions (Weeks 11–12). Refer to Appendix A.9 for a summary of questionnaire instructions, response format, and items. Survey items included questions assessing parents' satisfaction with different aspects of the treatment program's format and content, with parents rating items on a 5-point Likert-type scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). Items included: "Delivery of information – How easy it was to understand material"; "Applicability of session information to your family/situation"; and "Level of engagement and opportunity to participate in parent-only sessions." Additionally, parents were given the opportunity to provide open-ended feedback regarding aspects of the treatment that were most and least helpful, as well as any difficulties that were not adequately addressed throughout treatment and any other suggestions for how to improve the program. After completion of self-report measures, parents were invited to participate in a brief focus group, facilitated by an independent POP clinician (i.e., not involved in the facilitation of any CBT+PMT groups), in which parents were given the opportunity to elaborate on their responses and openly discuss what they found more and less helpful regarding the design and implementation of the group.

## **Data Analytic Plan**

### ***Missing Data Analyses***

Scale-level data for a participant were considered missing if >10% of items were missing or unanswered at a given timepoint. A relatively large number of data points were observed as missing (for primary outcome variables: 4–19% missing at pre-treatment, 5–32% missing at post-treatment, and 13–48% missing at 1-month follow-up); however, missingness was not a reflection of attrition (4.88% of families who participated in either condition did not complete treatment). Rather, missing data can be attributed to inconsistent completion of measures by raters over time (e.g., the follow-up assessment did not initially include parent or self-reports; some parents neglected to complete the

online survey at post-treatment; the post-treatment CY-BOCS score was not obtained if a child was ill and did not attend the final session).

Plots were first examined to identify any potential trends in missingness prior to imputation. To examine whether study variables were missing completely at random (MCAR), Little's (1988) MCAR test was conducted in SPSS 24 (IBM Corp., 2013). Results were significant,  $\chi^2(365) = 442.57, p = .003$ , suggesting that data were not missing completely at random. A series of *t*-tests and chi-square analyses were then performed to examine whether study variables were missing at random (MAR). Missingness of observed data is considered to be generally consistent with MAR if missingness is not MCAR and missingness on variables in the analytic model may be predicted from other observed variables in the data set (Enders, 2013; Garson, 2015). All primary outcomes, several demographic variables (i.e., youth participant age at pre-treatment, gender, ethnicity [i.e., Caucasian/non-Caucasian], treatment history, number of comorbidities, comorbid ADHD/tics, family education, family OCD history) and CBT+PMT group participation were compared between participants with and without missing data for each primary outcome variable at pre-treatment, post-treatment, and 1-month follow-up. Table 3 provides means and standard deviations of baseline values for primary outcome variables and continuous participant characteristics (i.e., youth participant age at pre-treatment) by missingness at all timepoints. Table 4 provides frequencies of dichotomous youth participant characteristics (e.g., gender, treatment history, family OCD history, comorbid ADHD) and treatment group participation by missingness at all timepoints. Missingness of study variables at the scale level were found to be generally consistent with MAR as detailed below.

**Pre-treatment.** Participants with missing values on the CY-BOCS at pre-treatment were more likely to have a comorbid ADHD diagnosis,  $\chi^2(1) = 5.97, p = .02$ , and/or to be in the CBT+PMT group,  $\chi^2(1) = 11.29, p = .001$ . Participants with missing pre-treatment values on the CD-POC,  $t(115) = 2.19, p = .03$ , and/or the FAS,  $t(115) = 2.47, p = .02$ , were older. As well, participants with missing pre-treatment values on the COIS-R,  $\chi^2(1) = 4.19, p = .04$ , and/or the FAS,  $\chi^2(1) = 4.19, p = .04$ , were more likely to have previously received medication for OCD. Participants with missing pre-treatment values on the OFF were more likely to be in the CBT+PMT group,  $\chi^2(1) = 4.05, p = .04$ . There were no other significant associations with missingness of primary outcome variables at pre-treatment.

**Table 3 Means and Standard Deviations of Primary Outcomes and Relevant Continuous Youth Participant Characteristics by Missingness at All Timepoints**

Pre-Treatment	Missing	CY-BOCS (Pre-Tx)	COIS-R (Pre-Tx)	OFF (Pre-Tx)	FAS (Pre-Tx)	Age (Pre-Tx)
CY-BOCS	Y	–	39.20 (14.36)	36.75 (15.61)	20.20 (13.08)	13.35 (3.83)
	N	23.52 (5.02)	31.81 (17.51)	27.86 (12.27)	16.74 (10.31)	13.95 (2.52)
CD-POC	Y	22.13 (4.52)	<sup>a</sup>	47.00 (0.00) <sup>b</sup>	<sup>a</sup>	<b>15.81 (2.29)*</b>
	N	23.63 (5.06)	32.15 (17.39)	28.03 (12.37)	16.90 (10.40)	<b>13.78 (2.55)*</b>
COIS-R	Y	21.56 (4.56)	–	37.50 (13.44) <sup>c</sup>	27.00 (0.00) <sup>b</sup>	15.44 (2.41)
	N	23.69 (5.04)	32.15 (17.39)	28.03 (12.44)	16.80 (10.41)	13.79 (2.56)
OFF	Y	24.10 (5.12)	29.92 (17.65)	–	20.24 (9.27)	14.54 (2.63)
	N	23.38 (5.01)	32.51 (17.41)	28.23 (12.46)	16.43 (10.51)	13.78 (2.56)
FAS	Y	23.36 (6.25)	28.93 (2.05)	45.00 (2.83) <sup>c</sup>	–	<b>15.71 (2.23)*</b>
	N	23.53 (4.90)	32.24 (17.62)	27.87 (12.34)	16.90 (10.40)	<b>13.74 (2.54)*</b>
<b>Post-Treatment</b>						
CY-BOCS	Y	<b>20.33 (0.58)***</b>	<b>49.20 (19.73)*</b>	30.65 (16.15)	16.00 (12.63)	14.19 (3.28)
	N	<b>23.61 (5.05)***</b>	<b>31.32 (16.94)*</b>	28.13 (12.38)	16.94 (10.35)	13.91 (2.55)
CD-POC	Y	24.04 (5.24)	34.45 (17.64)	31.88 (14.27)	15.22 (9.88)	14.62 (2.72)
	N	23.38 (4.98)	31.63 (17.39)	27.44 (11.98)	17.27 (10.53)	13.73 (2.51)
COIS-R	Y	23.96 (5.27)	33.30 (18.79)	31.88 (14.27)	14.23 (10.31)	14.49 (2.75)
	N	23.40 (4.97)	31.89 (17.16)	27.44 (11.98)	17.48 (10.39)	13.77 (2.52)
OFF	Y	23.76 (5.38)	34.70 (19.31)	30.68 (13.09)	17.48 (11.00)	14.23 (2.67)
	N	23.41 (4.88)	31.12 (16.57)	27.45 (12.24)	16.67 (10.23)	13.78 (2.53)
FAS	Y	24.00 (5.21)	34.55 (18.73)	31.00 (14.25)	15.00 (10.76)	14.58 (2.66)
	N	23.38 (4.98)	31.57 (17.11)	27.67 (12.09)	17.34 (10.33)	13.72 (2.53)

Follow-Up	Missing	CY-BOCS (Pre-Tx)	COIS-R (Pre-Tx)	OFF (Pre-Tx)	FAS (Pre-Tx)	Age (Pre-Tx)
CY-BOCS	Y	23.18 (6.87)	35.93 (12.79)	<b>36.08 (12.21)*</b>	<b>22.87 (7.47)*</b>	13.22 (3.37)
	N	23.55 (4.81)	31.59 (17.96)	<b>26.99 (12.11)*</b>	<b>16.07 (10.51)*</b>	14.02 (2.44)
CD-POC	Y	24.74 (5.44)	34.56 (16.30)	32.48 (13.31)	19.43 (11.71)	14.34 (2.55)
	N	22.89 (4.70)	31.04 (17.86)	26.88 (11.95)	15.85 (9.71)	13.70 (2.58)
COIS-R	Y	24.63 (5.23)	34.44 (16.19)	<b>32.89 (13.81)*</b>	20.21 (12.04)	14.32 (2.60)
	N	22.95 (4.84)	31.10 (17.92)	<b>26.83 (11.77)*</b>	15.53 (9.40)	13.72 (2.55)
OFF	Y	24.19 (5.06)	<b>35.94 (18.24)*</b>	<b>32.18 (12.87)*</b>	<b>19.37 (10.63)*</b>	14.04 (2.74)
	N	22.90 (4.93)	<b>28.88 (16.06)*</b>	<b>25.83 (11.67)*</b>	<b>14.93 (9.87)*</b>	13.81 (2.43)
FAS	Y	24.41 (5.11)	34.52 (16.44)	32.39 (13.94)	19.55 (11.66)	14.42 (2.55)
	N	23.08 (4.94)	31.11 (17.79)	27.05 (11.85)	15.86 (9.75)	13.67 (2.56)

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Measures were considered missing if >10% of items were missing or unanswered at a given timepoint. Pre-Tx = pre-treatment; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale. Only variables with significant associations are shown. Significant associations are bolded. <sup>a</sup> Data available for  $n = 0$ . <sup>b</sup> Data available for  $n = 1$ . <sup>c</sup> Data available for  $n = 2$ .

**Post-treatment.** Participants with missing post-treatment values on the CY-BOCS had lower CY-BOCS ratings,  $t(17.87) = -5.57, p < .001$ , and/or higher COIS-R ratings,  $t(106) = 2.29, p = .02$ , at pre-treatment. There were no other significant associations with missingness of primary outcome variables at post-treatment.

**One-month Follow-up.** Participants with missing follow-up values on the CY-BOCS had higher OFF ratings,  $t(93) = 2.51, p = .01$ , and/or higher FAS ratings,  $t(104) = 2.25, p = .03$ , at pre-treatment. Participants with missing values on the CY-BOCS at follow-up were less likely to have a family member with a history of OCD diagnosis,  $\chi^2(1) = 4.42, p = .04$ . As well, they were more likely to have a comorbid ADHD diagnosis,  $\chi^2(1) = 4.16, p = .04$ , and/or more likely to be in the CBT+PMT group,  $\chi^2(1) = 6.41, p = .01$ . Participants with missing values on the CD-POC at follow-up were more likely to be in the CBT-only group,  $\chi^2(1) = 5.61, p = .02$ , and/or more likely to have previously received any type of OCD treatment,  $\chi^2(1) = 4.33, p = .04$ , and/or more likely to have a family member

**Table 4** Frequencies of Relevant Dichotomous Youth Participant Characteristics and Treatment Group Participation by Missingness at All Timepoints

Pre-Treatment	Missing	Gender		Tx (Any)		Tx (Med)		Family OCD		ADHD		CBT+PMT	
		F	M	N	Y	N	Y	N	Y	N	Y	N	Y
CY-BOCS	Y	3	2	1**	2**	1	2	1	3	1**	3**	0***	5***
	N	63	49	19**	69**	31	56	14	23	72**	20**	80***	32***
CD-POC	Y	2	6	0	6	0	6	0	1	6	2	7	1
	N	64	45	20	65	32	52	15	25	67	21	73	36
COIS-R	Y	3	6	0	7	0	7	0	2	6	3	8	1
	N	63	45	20	64	32	51	15	24	67	20	72	36
OFF	Y	13	9	21	13	4	10	1	5	10	4	19*	3*
	N	53	42	19	58	28	48	14	21	63	19	61*	34*
FAS	Y	4	7	0	7	0*	7*	0	2	6	3	10	1
	N	62	44	20	64	32*	51*	15	24	67	21	70	36
<b>Post-Treatment</b>													
CY-BOCS	Y	3	3	2	3	2	3	1	2	3	3	3	3
	N	63	48	18	68	30	55	14	24	70	20	77	34
CD-POC	Y	10	15	3	16	4	15	3	5	12	6	17	8
	N	56	36	17	55	28	43	12	21	61	17	63	29
COIS-R	Y	11	14	3	15	4	14	3	5	12	6	17	8
	N	55	37	17	56	28	44	12	21	61	17	63	29
OFF	Y	18	19	5	23	8	20	7	6	20	9	25	12
	N	48	32	15	48	24	38	8	20	53	14	55	25
FAS	Y	12	15	3	15	4	14	3	5	14	5	19	8
	N	54	36	17	56	28	44	12	21	5	18	61	29

Follow-Up	Missing	Gender		Tx (Any)		Tx (Med)		Family OCD		ADHD		CBT+PMT	
		F	M	N	Y	N	Y	N	Y	N	Y	N	Y
CY-BOCS	Y	8	7	1	11	2	10	<b>5*</b>	<b>2*</b>	<b>5*</b>	<b>5*</b>	<b>6*</b>	<b>9*</b>
	N	58	44	19	60	30	48	<b>10*</b>	<b>24*</b>	<b>68*</b>	<b>18*</b>	<b>74*</b>	<b>28*</b>
CD-POC	Y	20	20	<b>2*</b>	<b>24*</b>	6	20	<b>1*</b>	<b>9*</b>	19	8	<b>33*</b>	<b>7*</b>
	N	46	31	<b>18*</b>	<b>47*</b>	26	38	<b>14*</b>	<b>17*</b>	54	15	<b>47*</b>	<b>30*</b>
COIS-R	Y	18	22	2	22	5	19	<b>1*</b>	<b>9*</b>	18	8	<b>33*</b>	<b>7*</b>
	N	48	29	18	49	27	39	<b>14*</b>	<b>17*</b>	55	15	<b>47*</b>	<b>30*</b>
OFF	Y	<b>26*</b>	<b>30*</b>	<b>3**</b>	<b>36**</b>	11	28	4	14	28	13	43	13
	N	<b>40*</b>	<b>21*</b>	<b>17**</b>	<b>35**</b>	21	30	11	12	45	10	37	24
FAS	Y	18	21	2	22	5	19	<b>1*</b>	<b>9*</b>	17	8	<b>32*</b>	<b>7*</b>
	N	48	30	18	49	27	39	<b>14*</b>	<b>17*</b>	56	15	<b>48*</b>	<b>30*</b>

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Measures were considered missing if >10% of items were missing or unanswered at a given timepoint. OCD = obsessive-compulsive disorder; ADHD = attention-deficit/hyperactivity disorder; CBT = cognitive-behavioral therapy; PMT = parent management training; Tx (Any) = youth participant has previously received any type of OCD treatment; Tx (Med) = youth participant has previously received medication-based for OCD; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale. Only variables with significant associations are shown. Significant associations are bolded.

with a history of OCD diagnosis,  $\chi^2(1) = 4.03$ ,  $p = .04$ . Participants with missing values on the COIS-R at follow-up had higher OFF ratings at pre-treatment,  $t(93) = 2.03$ ,  $p = .04$ . Participants with missing follow-up values on the COIS-R were also more likely to be in the CBT-only group,  $\chi^2(1) = 5.61$ ,  $p = .02$ , and/or more likely to have a family member with a history of OCD diagnosis,  $\chi^2(1) = 4.03$ ,  $p = .04$ . Participants with missing values on the OFF at follow-up had higher COIS-R ratings,  $t(106) = 2.14$ ,  $p = .04$ , and/or higher OFF ratings,  $t(93) = 2.47$ ,  $p = .02$ , and/or higher FAS ratings,  $t(104) = 2.22$ ,  $p = .03$ , at pre-treatment. Participants with missing values on the OFF at follow-up were also more likely to be boys,  $\chi^2(1) = 4.37$ ,  $p = .04$ , and/or more likely to have previously received any type of OCD treatment,  $\chi^2(1) = 8.12$ ,  $p = .004$ . Participants with missing values on the FAS at follow-up were more likely to be in the CBT-only group,  $\chi^2(1) = 5.06$ ,  $p = .02$ , and/or more likely to have a family member with a history of OCD diagnosis,  $\chi^2(1) = 4.03$ ,  $p = .04$ . There were no other significant associations with missingness of primary outcome variables at 1-month follow-up.

## ***Imputation***

To address missingness, two imputation methods were used. At the item level, person-mean imputation (i.e., the mean of available items was imputed for the missing values) was used when missing values accounted for 10% or less of total items for each measure at each timepoint. Data points with more than 10% of item values missing on a given measure were addressed using multiple imputation. Multiple imputation by predictive mean matching was conducted with R Version 3.6.1 (R Core Team, 2017) using the package ‘mice’ (van Buuren & Groothuis-Oudshoorn, 2011). Multiple imputation is typically recommended when an MAR mechanism is assumed (i.e., missingness is related to observed variables in the dataset) and is considered superior to deletion methods because it relies on more realistic assumptions, produces accurate parameter estimates in a diversity of situations, and is uniformly more powerful (Enders, 2013).

Individual parent reporters were excluded from imputation if they had no unique data points whatsoever. Ten imputed datasets were created with 40 iterations within each dataset; visual analysis of trace plots confirmed convergence of the imputation model. Analyses were run on each of the 10 imputed datasets separately, and then statistical estimates were pooled over the 40 imputed data sets using the Barnard-Rubin procedure to estimate pooled standard errors and degrees of freedom (Barnard & Rubin, 1999). For outcome measures with multiple parent responders (i.e., OFF, APQ, PSOC, and PT-OCD), a mean score across parents (when appropriate) was used at each respective timepoint. To examine sensitivity of results to imputation, all primary and secondary analyses were conducted with both the imputed and non-imputed datasets. For the non-imputed data, a mean score across parent responder data (when available) was similarly used at each timepoint for measures in which both parents independently responded.

## ***Primary Analyses***

Descriptive and bivariate correlational analyses were conducted with SPSS. Primary analyses were run in R with the package ‘lme4’ (Bates et al., 2015) and evaluated both within-group (i.e., research question 1) and between-group differences (i.e., research question 2; CBT-Only vs. CBT+PMT) on the primary outcomes (i.e., CY-BOCS, CD-POC, COIS-R, OFF, and FAS) using linear mixed models adjusted for baseline (i.e., linear mixed analysis of covariance). Within-group differences were also estimated on parenting

outcomes (i.e., APQ scales, PSOC, and PT-OCD) for the CBT+PMT group. Adjustment for baseline was used in lieu of change from baseline because it provides an unbiased estimate of treatment effect with greater statistical power (O'Connell et al., 2017). Time was considered as a repeated, categorical variable and was included as a fixed effect in addition to group, group-by-time interaction, and baseline CY-BOCS score. Two specific planned comparisons examined change in outcomes during the active treatment period (change from pre-treatment to post-treatment) and from pre-treatment to the follow-up period (change from pre-treatment to 1-month follow-up).

**Propensity Scores.** To compare treatment response of the CBT+PMT group to that of the CBT-only group, propensity scores were generated according to procedures described by Thoemmes and Ong (2016). A propensity score is a conditional probability of being assigned to a treatment condition, given an observed set of covariates, in comparison to the control condition. Simply put, a propensity score is a “balancing score” used to reduce or eliminate selection bias when analyzing data from observational (i.e., non-randomized) studies in order to mimic some of the characteristics of an RCT (i.e., balanced covariates; Austin, 2011). Approaches using propensity scores are fundamentally different from regression adjustment in that they model the relationship between a covariate and the putative cause (i.e., treatment assignment) rather than the outcome (e.g., symptom severity).

In the present study, propensity scores were generated using a set of observed covariates including youth participant age at pre-treatment, ethnicity (i.e., Caucasian/non-Caucasian), and pre-treatment ratings of OCD symptom severity, coercive/disruptive behaviors, child-level impairment, and family accommodation. Inverse probability of treatment weights (IPTWs) were then generated by weighing the inverse of the probability of being assigned to the CBT+PMT relative to the CBT-only group (i.e., propensity score). IPTW uses weights based on the propensity score to create a synthetic sample in which the distribution of measured baseline covariates is independent of treatment assignment (Austin, 2011). Specifically, stabilized weights were generated by dividing the baseline probability of being assigned to CBT+PMT (estimated from a model with no covariates) by the probability of being assigned to CBT+PMT given the covariates. In general, stabilized weights are preferred over regular (i.e., non-stabilized) weights (Hernán et al., 2000; Robins et al., 2000), as they are less likely to cause analyses to be dependent on a single or few individuals with large weights, thus producing estimates that have smaller

variance (Thoemmes & Ong, 2016). IPTW differs from covariate adjustment using the propensity score in that, once the propensity score model has been adequately specified, one can directly estimate the effect of treatment on outcomes in the weighted sample (Austin, 2011). In contrast, covariate adjustment using the propensity score requires one to fit a regression model relating the outcome to an indicator variable denoting treatment status and to the propensity score. Because the outcome model of this regression contains both the propensity score and the outcome, the process of correctly specifying the regression model may introduce bias toward the desired or anticipated result (Austin, 2011). Therefore, treatment effects were estimated by incorporating such IPTWs in linear mixed effects models in order to reduce the bias associated with covariate adjustment using the propensity score.

### ***Secondary Analyses***

A number of secondary analyses were conducted for the purpose of identifying predictors of primary and/or parenting outcome variables (i.e., research question 3). Analyses were conducted in three groupings to determine: (1) whether empirically supported predictors of post-treatment OCD symptom severity predict post-treatment levels of the other primary outcome variables, (2) whether some of those predictors might also predict post-treatment levels of parenting outcome variables, and (3) whether characteristics related to the quality of parents' participation in the PMT intervention process predict post-treatment levels of parenting outcome variables. Given differences in the administration of certain measures between the two treatment groups (i.e., parenting outcomes were only measured in the CBT+PMT group), as well as limitations based on sample size and the rate of missing data across different variables, predictors for each analytic grouping were chosen separately and are detailed below.

**Predictors of Primary Outcomes.** To determine whether primary treatment outcomes could be predicted by pre-treatment characteristics, a set of potential predictors was chosen based on empirical support from previous studies examining group and individual CBT without a PMT component. Recent research has identified a relatively large number of characteristics that may predict post-treatment OCD symptom severity (e.g., Lavell et al., 2016; Turner et al., 2018). These pre-treatment factors include:

- (a) *Demographic* characteristics such as youths' age (Torp et al., 2015; Turner et al., 2018) and gender (Rudy et al., 2014);
- (b) *OCD-related* characteristics such as poor insight (Garcia et al., 2010), OCD symptom severity, and impairment (Barrett et al., 2005; Garcia et al., 2010; Lewin et al., 2011; Piacentini et al., 2002; Rudy et al., 2014; Torp et al., 2015; Turner et al., 2018);
- (c) *Mental health comorbidity* characteristics such as depression and other internalizing behavior severity (Brown et al., 2015; Lavell et al., 2016; Rudy et al., 2014; Torp et al., 2015; Turner et al., 2018), coercive/disruptive and other externalizing behavior severity (Garcia et al., 2010; Ginsburg et al., 2008; Rudy et al., 2014; Torp et al., 2015), sleep problems (Ivarsson et al., 2015), and the presence of any type of comorbid disorder (Farrell et al., 2012; Storch, Merlo, Larson, Geffken, et al., 2008; Turner et al., 2018);
- (d) *Family* characteristics such as discord in the family environment (Barrett et al., 2004; Peris, Benazon, et al., 2008; Peris et al., 2012; Peris & Piacentini, 2014), parenting styles characterized by parental "rejection" (Lavell et al., 2016), and family accommodation (Garcia et al., 2010; Merlo et al., 2009; Peris & Piacentini, 2014; Rudy et al., 2014; Torp et al., 2015).

A number of such characteristics (i.e., depressive symptoms, internalizing/externalizing behaviors, comorbidities, and family environment) were measured during the current study but could not be used for secondary analyses due to high rates of missing data at pre-treatment (i.e., over 10% of cases missing). Other characteristics were not measured in the current study, including sleep problems, insight into symptoms, and parental rejection. Six predictor variables were therefore chosen based on support in prior studies and availability of data: youths' age at pre-treatment, youths' gender, OCD symptom severity (CY-BOCS), OCD-related coercive/disruptive behavior problems (CD-POC), OCD-related impairment (COIS-R), and family accommodation (FAS).

**Predictors of Parenting Outcomes.** The same set of pre-treatment characteristics used in predicting primary outcomes was considered for use in predicting parenting outcomes. Given that parenting outcomes were only collected in the CBT+PMT group, a smaller subset of variables was chosen to avoid overfitting the predictive models. In keeping with the general rule of limiting the number of predictive variables in a model to one per every 10 events (Harrell, 2015), models for this set of analyses were limited to three predictors (in addition to controlling for the pre-treatment value of the dependent

variable): OCD symptom severity, coercive/disruptive behavior problems, and OCD-related impairment. A recent systematic review by Turner and colleagues (2018) found that OCD symptom severity and OCD-related impairment showed the largest pooled effects estimates in predicting treatment response ( $r_s = .24$  and  $.21$ , respectively) relative to the other predictors used in the first set of secondary analyses, and therefore these were included in the second set of secondary analyses. Coercive/disruptive behavior problems were included due to their association with poorer treatment response in previous studies (e.g., Garcia et al., 2010) as well as their clinical relevance to the current study (i.e., to examine whether the pre-treatment severity of such behaviors is related to parents' response to an intervention specifically targeting the behaviors).

For the final analytic grouping, a set of predictor variables was chosen to represent aspects of the PMT intervention process itself. Previous research has suggested that parents' attendance at sessions is not solely sufficient to account for their response to PMT interventions (Garvey et al., 2006; Nix et al., 2009). Rather, the *quality* of parents' participation in treatment components may be more important in predicting who will benefit most from a parenting intervention. High-quality participation tends to involve attentive listening, active contribution to session activities, and effort towards incorporating new approaches in daily life (Baydar et al., 2003; Dumas et al., 2007). Therefore, three predictor variables were chosen to represent the quality of parents' participation in the intervention process: PMT session attendance, PMT session engagement ratings, and weekly PMT homework completion ratings. Overall attendance at the four PMT sessions and mean session engagement ratings were each averaged across mothers and fathers within each family (where appropriate) to create overall mean attendance and engagement scores. Weekly PMT homework completion ratings for each family were averaged to create an overall mean homework completion rating score.

**Analytic Models.** A series of separate hierarchical multiple linear regressions were run in SPSS using the non-imputed post-treatment scores of both primary and parenting outcome variables as dependent variables. The pre-treatment value of the respective dependent variable for each analysis was entered as an independent variable in the first block (e.g., pre-treatment CY-BOCS scores entered as an initial predictor of post-treatment CY-BOCS scores). Relevant predictor variables (as detailed above) were then entered as additional independent variables in the second block in order to examine

whether such variables improved the model's ability to predict the respective outcome variable.

## Chapter 3. Results

### Sample Characteristics

Table 5 provides baseline descriptive characteristics of the overall sample as well as group characteristics by treatment condition. The CBT-only group had a significantly greater number of participants who identified as at least partly Caucasian,  $t(111) = 2.02$ ,  $p = .04$ . Participants in the CBT+PMT group were significantly more likely to have previously received OCD treatment that included CBT with E/RP,  $t(44.49) = -2.99$ ,  $p = .005$ . The CBT+PMT group also had significantly more participants with a comorbid diagnosis of ADHD,  $t(48.20) = -2.52$ ,  $p = .02$ , or any type of anxiety disorder,  $t(76.35) = 2.52$ ,  $p = .01$ , as well as a significantly greater mean number of comorbid diagnoses,  $t(97) = -2.29$ ,  $p = .02$ . Fathers of participants in the CBT-only group were significantly more likely to have attained a Bachelor's degree or higher,  $t(66.35) = 2.46$ ,  $p = .02$ . There were no other significant differences between groups related to child or family characteristics.

### Descriptive Statistics and Bivariate Correlations

Table 6 provides unadjusted descriptive statistics of outcome and predictor variables by treatment condition at all timepoints using the non-imputed dataset. Mean OCD symptom severity ratings were similarly within the Moderate range at pre-treatment and similarly within the Mild range at post-treatment and 1-month follow-up. The CBT+PMT group reported marginally significantly greater mean OFF scores at pre-treatment compared to the CBT-only group,  $t(71.88) = -1.99$ ,  $p = .053$ . At post-treatment, mean OFF scores were significantly greater in the CBT+PMT group at post-treatment,  $t(78) = -2.13$ ,  $p = .04$ . At follow-up, the CBT+PMT group reported marginally significantly greater FAS scores compared to the CBT-only group,  $t(67) = -1.97$ ,  $p = .053$ . There were no other significant differences between groups with regard to outcome or predictor variables at all timepoints. Table 7 provides bivariate correlations among all study variables at baseline for the total sample. Significant correlations are described below.

**Table 5 Demographics and Characteristics of Participants by Total Sample and Treatment Condition**

<b>Child Characteristics, <i>M</i> (<i>SD</i>)</b>	<b>Total Sample (<i>n</i> = 117)</b>	<b>CBT-Only (<i>n</i> = 80)</b>	<b>CBT+PMT (<i>n</i> = 37)</b>
Age at treatment start, y	13.92 (2.57)	13.93 (2.49)	13.90 (2.79)
Age of OCD onset, y	9.07 (3.01)	9.19 (3.06)	8.82 (2.95)
Duration of OCD until treatment, y	4.38 (2.74)	4.52 (2.96)	4.08 (2.22)
Gender (male), %	43.6 ( <i>n</i> = 51)	47.5 ( <i>n</i> = 38)	35.1 ( <i>n</i> = 13)
Ethnicity, %			
Caucasian	66.7 ( <i>n</i> = 78)	68.8 ( <i>n</i> = 55)	62.2 ( <i>n</i> = 23)
Mixed Race/Ethnicity	8.5 ( <i>n</i> = 10)	6.3 ( <i>n</i> = 5)	13.5 ( <i>n</i> = 5)
Chinese	6.0 ( <i>n</i> = 7)	6.3 ( <i>n</i> = 5)	5.4 ( <i>n</i> = 2)
South/Southeast Asian	5.1 ( <i>n</i> = 6)	7.5 ( <i>n</i> = 6)	0.0 ( <i>n</i> = 0)
Latin American	0.9 ( <i>n</i> = 1)	0.0 ( <i>n</i> = 0)	2.7 ( <i>n</i> = 1)
Aboriginal	1.7 ( <i>n</i> = 2)	0.0 ( <i>n</i> = 0)	5.4 ( <i>n</i> = 2)
Unspecified	12.8 ( <i>n</i> = 15)	11.3 ( <i>n</i> = 9)	16.2 ( <i>n</i> = 6)
<b>Treatment History, %<sup>a</sup></b>			
Any OCD treatment	78.9 ( <i>n</i> = 71)	79.3 ( <i>n</i> = 46)	75.7 ( <i>n</i> = 25)
Medication(s) for OCD	64.4 ( <i>n</i> = 58)	63.8 ( <i>n</i> = 37)	63.6 ( <i>n</i> = 21)
CBT with E/RP	18.9 ( <i>n</i> = 17)	8.6 ( <i>n</i> = 5)**	32.4 ( <i>n</i> = 12)**
<b>Current Comorbidities, %<sup>b</sup></b>			
Generalized Anxiety Disorder	25.8 ( <i>n</i> = 25)	31.3 ( <i>n</i> = 20)	15.2 ( <i>n</i> = 5)
Attention-Deficit/Hyperactivity Disorder	22.7 ( <i>n</i> = 22)	15.6 ( <i>n</i> = 10)*	36.4 ( <i>n</i> = 12)*
Any tic disorder	18.6 ( <i>n</i> = 18)	15.6 ( <i>n</i> = 10)	24.2 ( <i>n</i> = 8)
Social Anxiety Disorder	12.4 ( <i>n</i> = 12)	14.1 ( <i>n</i> = 9)	9.1 ( <i>n</i> = 3)
Separation Anxiety	6.2 ( <i>n</i> = 6)	4.7 ( <i>n</i> = 3)	9.1 ( <i>n</i> = 3)
Any phobic disorder	5.2 ( <i>n</i> = 5)	6.3 ( <i>n</i> = 4)	3.0 ( <i>n</i> = 1)
Oppositional Defiant Disorder	4.1 ( <i>n</i> = 4)	3.1 ( <i>n</i> = 2)	6.1 ( <i>n</i> = 2)
Anorexia Nervosa	2.1 ( <i>n</i> = 2)	1.5 ( <i>n</i> = 1)	3.0 ( <i>n</i> = 1)
Any depressive disorder	3.1 ( <i>n</i> = 3)	1.5 ( <i>n</i> = 1)	6.1 ( <i>n</i> = 2)
Other anxiety disorder	2.1 ( <i>n</i> = 2)	0.0 ( <i>n</i> = 0)	6.1 ( <i>n</i> = 2)

<b>Current Comorbidities, %<sup>b</sup></b>	<b>Total Sample (n = 117)</b>	<b>CBT-Only (n = 80)</b>	<b>CBT+PMT (n = 37)</b>
Autism Spectrum Disorder	1.0 (n = 1)	0.0 (n = 0)	3.0 (n = 1)
Total # of comorbidities, M (SD)	1.27 (1.33)	1.06 (1.20)*	1.70 (1.49)*
<b>Family Characteristics, %</b>			
Intact family <sup>c</sup>	72.2 (n = 65)	74.1 (n = 40)	69.4 (n = 25)
Mother's education (≥ Bachelor's) <sup>c</sup>	62.2 (n = 56)	66.7 (n = 36)	57.1 (n = 20)
Father's education (≥ Bachelor's) <sup>a</sup>	57.5 (n = 50)	70.6 (n = 36)	42.4 (n = 14)
<b>Family History of OCD (Diagnosed), %<sup>d</sup></b>			
In mother	10.2 (n = 6)	10.3 (n = 3)	10.0 (n = 3)
In father	13.6 (n = 8)	20.7 (n = 6)	6.7 (n = 2)
In sibling(s)	13.6 (n = 8)	13.8 (n = 4)	13.3 (n = 4)
In extended family	30.5 (n = 18)	34.5 (n = 10)	26.7 (n = 8)

Note. \* Significant between-group difference at  $p < .05$ . \*\* Significant between-group difference at  $p < .01$ . OCD = obsessive-compulsive disorder; CBT = cognitive-behavioral therapy; PMT = parent management training; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; E/RP = exposure and response prevention. Reported percentages are the percentage of sample excluding missing values. <sup>a</sup> Data available for  $n = 87$ . <sup>b</sup> Data available for  $n = 97$ . <sup>c</sup> Data available for  $n = 90$ . <sup>d</sup> Data available for  $n = 59$ .

**Table 6 Unadjusted Means and Standard Deviations of Outcome and Predictor Variables by Treatment Condition at All Timepoints**

Primary Outcome Variables	Pre-Treatment		Post-Treatment		1-Month Follow-Up	
	CBT-Only	CBT+PMT	CBT-Only	CBT+PMT	CBT-Only	CBT+PMT
CY-BOCS	23.51 (5.04)	23.53 (5.04)	14.83 (6.87)	13.97 (6.12)	13.53 (7.71)	15.00 (6.85)
CDPOC	16.69 (12.49)	16.28 (10.55)	9.47 (8.76)	9.86 (9.84)	8.45 (7.51)	9.83 (8.60)
COIS-R	30.41 (17.76)	35.64 (16.30)	20.75 (15.48)	25.45 (17.51)	15.63 (13.12)	18.50 (15.66)
OFF	26.39 (12.53) <sup>†</sup>	31.54 (11.80) <sup>†</sup>	18.85 (11.57) <sup>*</sup>	25.25 (14.33) <sup>*</sup>	16.65 (11.20)	20.65 (9.89)
FAS	16.61 (10.66)	17.47 (10.00)	8.32 (8.57)	9.66 (9.59)	5.94 (5.62) <sup>†</sup>	9.23 (9.22) <sup>†</sup>
<b>Parenting Outcome Variables</b>						
APQ INV – Mom	–	40.13 (5.65)	–	40.04 (5.04)	–	42.05 (4.71)
APQ INV – Dad	–	33.93 (5.21)	–	33.06 (6.02)	–	34.53 (4.33)
APQ PP – Mom	–	23.81 (3.47)	–	24.22 (3.64)	–	25.52 (2.96)
APQ PP – Dad	–	21.93 (3.74)	–	23.19 (2.83)	–	22.12 (2.96)
APQ ID – Mom	–	13.59 (3.64)	–	12.26 (3.90)	–	11.38 (4.06)
APQ ID – Dad	–	13.64 (2.83)	–	14.06 (4.28)	–	12.59 (3.41)
PSOC – Mom	–	68.88 (11.02)	–	70.96 (12.50)	–	74.71 (12.43)
PSOC – Dad	–	64.86 (7.49)	–	62.38 (8.84)	–	65.35 (11.12)
PT-OCD – Mom	–	48.18 (12.30)	–	57.59 (11.09)	–	57.04 (13.55)
PT-OCD – Dad	–	50.07 (10.60)	–	56.47 (11.28)	–	53.35 (10.54)

Note. <sup>\*</sup>Significant difference at  $p < .05$ . <sup>†</sup>Marginally significant difference at  $p = .053$ . OCD = obsessive-compulsive disorder; CBT = cognitive-behavioral therapy; PMT = parent management training; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale; APQ = Alabama Parenting Questionnaire; INV = parental involvement; PP = positive parenting; ID = inconsistent discipline; PSOC = Parenting Sense of Competence Scale; PT-OCD = Parent Tolerance of Child Distress Scale; Mom = mother report; Dad = father report.

**Table 7 Bivariate Correlations among All Study Variables at Baseline for Total Sample (n = 117)**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	—															
2. Gender	<b>.19*</b>	—														
3. CY-BOCS	.17	-.19†	—													
4. CD-POC	<b>-.22*</b>	.04	.13	—												
5. COIS-R	.04	.08	.09	<b>.57***</b>	—											
6. OFF	-.19	.09	.10	<b>.55***</b>	<b>.58***</b>	—										
7. FAS	<b>-.22*</b>	.11	.19†	<b>.64***</b>	<b>.51**</b>	<b>.66***</b>	—									
8. APQ INV – Mom <sup>a</sup>	-.18	.14	-.01	.32	.08	<b>.39*</b>	<b>.37*</b>	—								
9. APQ PP – Mom <sup>a</sup>	<b>-.38*</b>	.18	.01	.26	.28	<b>.49**</b>	<b>.39**</b>	<b>.68***</b>	—							
10. APQ ID – Mom <sup>a</sup>	.16	.25	.05	.07	.25	.28	.21	-.15	-.23	—						
11. APQ INV – Dad <sup>a</sup>	-.12	.19	-.24	.03	.04	.30	.07	.35	.21	<b>.47*</b>	—					
12. APQ PP – Dad <sup>a</sup>	-.09	.04	.01	.18	.29	.29	.12	.27	.15	<b>.51**</b>	<b>.69***</b>	—				
13. APQ ID – Dad <sup>a</sup>	-.24	.07	.23	.14	-.22	.19	.11	.15	-.01	.26	-.06	-.12	—			
14. PSOC – Mom <sup>a</sup>	-.18	-.07	-.03	.12	.04	.12	.24	<b>.45**</b>	<b>.54**</b>	<b>-.41*</b>	-.12	-.04	.09	—		
15. PSOC – Dad <sup>a</sup>	.09	-.05	.08	.12	.03	-.08	-.11	-.18	.10	.01	.06	.11	-.22	.35	—	
16. PT-OCD – Mom <sup>a</sup>	.06	.03	-.10	-.04	.06	-.24†	-.18	.01	.04	-.08	-.27	-.15	.02	.26	.25	—
17. PT-OCD – Dad <sup>a</sup>	<b>.33*</b>	.06	-.24	<b>-.44**</b>	-.11	<b>-.46***</b>	<b>-.35**</b>	<b>-.45*</b>	<b>-.50**</b>	.07	.10	.11	<b>-.45*</b>	<b>-.41*</b>	.20	-.02

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . †  $p < .06$ . Gender coding; female = 0, male = 1. CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale; APQ = Alabama Parenting Questionnaire; INV = parental involvement; PP = positive parenting; ID = inconsistent discipline; PSOC = Parenting Sense of Competence Scale; PT-OCD = Parent Tolerance of Child Distress Scale; Mom = mother report; Dad = father report. Significant associations are bolded. <sup>a</sup> Data only available for CBT+PMT condition (n = 37).

## **Primary Outcomes**

With regard to primary outcome variables, OCD symptom severity showed a marginal modest positive association with family accommodation ( $r = .19, p = .06$ ) and a marginal modest negative association with gender ( $r = .19, p = .051$ ) in that girls had higher severity at pre-treatment. Coercive and disruptive behavior problems showed strong positive associations with both child- and family-level impairment and family accommodation ( $r_s = .55 - .64, p < .001$ ). Coercive and disruptive behavior problems also showed a modest negative association with age ( $r = -.22, p = .02$ ) and a moderate negative association with fathers' tolerance of their children's distress ( $r = -.44, p = .001$ ). Child-level impairment showed a moderate positive association with family-level impairment ( $r = .58, p < .001$ ) and family accommodation, ( $r = .51, p < .001$ ). Family-level impairment showed moderate-to-strong positive associations with family accommodation as well as mothers' involvement and mothers' positive parenting ( $r_s = .39 - .66, p_s \leq .001 - .03$ ). Family-level impairment also showed a moderate negative association with fathers' tolerance of their children's distress ( $r = -.46, p = .001$ ) and a marginal modest negative association with mothers' tolerance of their children's distress ( $r = -.24, p = .054$ ). Family accommodation showed moderate positive associations with mothers' involvement ( $r = .37, p = .04$ ) and mothers' positive parenting ( $r = .39, p = .03$ ), a modest negative association with age ( $r = -.22, p = .02$ ), and a moderate negative association with fathers' tolerance of their children's distress ( $r = -.35, p = .008$ ). There were no other significant associations with primary outcome variables.

## **Parenting Outcomes**

Regarding parenting outcomes, mothers' involvement showed moderate-to-strong positive associations with their own positive parenting ( $r = .68, p < .001$ ) and sense of competence as parents ( $r = .45, p = .009$ ), as well as a moderate negative association with fathers' tolerance of their children's distress ( $r = -.45, p = .02$ ). Mothers' positive parenting showed moderate positive associations with their own sense of competence in parenting ( $r = .54, p = .001$ ) and moderate negative associations with age ( $r = -.38, p = .03$ ) and fathers' tolerance of their children's distress ( $r = -.50, p = .008$ ). Mothers' inconsistent discipline showed moderate positive associations with fathers' involvement ( $r = .47, p = .02$ ) and fathers' positive parenting ( $r = .51, p = .008$ ), and moderate negative

associations with their own sense of competence ( $r = -.41, p = .02$ ). Fathers' involvement showed a strong positive association with their own positive parenting ( $r = .69, p < .001$ ). Fathers' inconsistent discipline showed moderate negative associations with their own sense of competence in parenting ( $r = -.45, p = .02$ ). Mothers' sense of competence in parenting showed a moderate negative association with fathers' tolerance of their children's distress ( $r = -.42, p = .03$ ). Fathers' tolerance of their children's distress showed a moderate positive association with youth age ( $r = .33, p = .01$ ). There were no other significant associations with parenting outcomes.

## **PMT Treatment Implementation**

Regarding treatment fidelity, all key elements for each session were successfully delivered with all treatment cohorts, with the exception that praise role-playing exercises were not completed during the first PMT session for groups 1 and 3 due to time constraints. Table 8 provides a summary of descriptive statistics for parents' attendance, participation, and homework completion for PMT sessions and phone check-ins.

### ***PMT Session Attendance and Engagement***

Regarding attendance, 59.5% ( $n = 22$ ) of families attended all four sessions, 21.6% ( $n = 8$ ) attended three sessions, 13.5% ( $n = 5$ ) attended two sessions, and 2.7% ( $n = 1$ ) attended one session. The parent of one family (2.7%) was unable to attend PMT sessions but was given the PMT manual as well as session handouts and completed all phone check-ins. On average, at least one parent from each family was in attendance for three or more of the four PMT sessions ( $M = 3.32$ ). The frequency with which mothers and fathers attended sessions did not significantly differ overall. In the majority of families (75.7%;  $n = 28$ ), each parent involved in caregiving (e.g., both parents within a two-parent household, each parent living in separate households, or a single parent as the sole caregiver) attended at least one session. Clinician-reported engagement ratings ranged from 1 (*not very engaged*) to 4 (*completely engaged*) across all participants for sessions 1 and 2 but ranged from 2 (*somewhat engaged*) to 4 for session 3 and from 3 (*mostly engaged*) to 4 for session 4. Average engagement ratings for each session ranged from 3.48 to 3.79, falling solidly between *mostly engaged* (3) and *completely engaged* (4), with an overall average engagement rating of 3.55 for all parents across the four sessions.

**Table 8 Descriptive Statistics of PMT Treatment Participation and Homework Completion Variables**

<b>Parent PMT Attendance</b>	<b>Range</b>	<b><i>M</i></b>	<b><i>SD</i></b>
PMT sessions attended by any parent	0.00 – 4.00	3.32	1.01
Sessions attended by mother ( <i>n</i> = 37)	0.00 – 4.00	2.68	1.51
Sessions attended by father ( <i>n</i> = 31)	1.00 – 4.00	2.26	1.37
Families in which each parent caregiver attended at least 1 session, %		75.7%	( <i>n</i> = 28)
<b>Parent Engagement in PMT Sessions</b>			
Session 1 rating	1.00 – 4.00	3.60	0.66
Session 2 rating	1.00 – 4.00	3.48	0.84
Session 3 rating	2.00 – 4.00	3.79	0.47
Session 4 rating	3.00 – 4.00	3.76	0.43
Overall average rating	1.00 – 4.00	3.63	0.61
Mothers' average rating	2.00 – 4.00	3.57	0.54
Fathers' average rating	1.50 – 4.00	3.64	0.53
<b>Parent Phone Check-Ins</b>			
Week 2 duration (min.)	3.00 – 15.00	7.47	3.15
Week 3 duration (min.)	2.00 – 15.00	7.69	3.50
Week 5 duration (min.)	3.00 – 15.00	7.29	3.17
Week 6 duration (min.)	3.00 – 14.00	6.60	2.85
Week 8 duration (min.)	1.00 – 13.00	5.71	2.93
Week 9 duration (min.)	2.00 – 10.00	4.93	2.32
Week 11 duration (min.)	1.00 – 15.00	5.88	3.43
Average check-in duration (min)	2.71 – 10.83	6.50	1.79
Total number of check-ins completed	0.00 – 7.00	5.97	1.55
Total time spent in check-ins (min.)	0.00 – 66.50	38.44	15.52
<b>PMT Homework Completion</b>			
Week 1 rating	0.00 – 2.00	1.58	0.56
Week 2 rating	0.00 – 2.00	1.71	0.52
Week 3 rating	0.00 – 2.00	1.70	0.53
Week 4 rating	0.00 – 2.00	1.68	0.64
Week 5 rating	0.00 – 2.00	1.76	0.51
Week 6 rating	0.00 – 2.00	1.66	0.55
Week 7 rating	0.00 – 2.00	1.74	0.58
Week 8 rating	0.00 – 2.00	1.76	0.50
Week 9 rating	0.00 – 2.00	1.68	0.55
Week 10 rating	0.00 – 2.00	1.55	0.71
Overall average rating	0.50 – 2.00	1.65	0.40

*Note.* Phone check-ins occurred during weeks 2, 3, 5, 6, 8, 9, and 11 of the 12-week program. Parents scheduled 15-minute blocks of time for check-ins. PMT = parent management training; Session engagement rating scale: 1 = *not very engaged*; 2 = *somewhat engaged*; 3 = *mostly engaged*; 4 = *completely engaged*. Clinician rated parents' completion of

the previous week's homework assignment(s) during the following week's phone check-in or PMT session. Homework completion rating scale: 0 = *did not complete*; 1 = *partially completed*; 2 = *fully completed*.

Mean engagement ratings did not differ between mothers and fathers overall,  $t(22) = 0.85$ , *ns*.

### ***Phone Check-ins and PMT Homework Completion***

On average, parents completed approximately six (5.97) of the seven phone calls. Call duration ranged from 1 to 15 minutes across all check-ins. By individual parent, average phone duration ranged from 2.71 to 10.83 minutes, with a total mean duration of 6.5 minutes per call. Parents spent a mean total of 38.44 minutes on phone check-ins across the course of treatment. Individual PMT homework completion ratings ranged from 0 (*did not complete*) to 2 (*fully completed*) each week across all participants. Average PMT homework completion ratings for the total sample ranged from 1.55 to 1.75, falling solidly between *partially completed* (1) and *fully completed* (2).

## **1. Does CBT+PMT Result in Statistically Significant Improvements in Treatment Outcomes?**

### ***Primary Outcomes***

Table 9 provides the covariate-adjusted within-group means for the five primary outcome variables at post-treatment and 1-month follow-up, as well as the covariate-adjusted within-group change scores obtained from the analyses.

Using the imputed dataset, there was a significant reduction in all primary outcome variables (i.e., CY-BOCS, CD-POC, COIS-R, OFF, and FAS scores) from pre- to post-treatment and from pre-treatment to 1-month follow-up for the CBT+PMT group. Mean CY-BOCS severity scores decreased to within the Mild range at post-treatment, and this reduction was maintained at follow-up.

When analyses were conducted using the non-imputed dataset, changes in OFF scores at post-treatment were no longer significant ( $\Delta M = -3.41$ ,  $SE = 2.26$ ,  $p = .14$ ) and changes in OFF scores at follow-up were marginally significant ( $\Delta M = -4.40$ ,  $SE = 2.30$ ,  $p = .059$ ). Otherwise, the pattern of results did not differ between analyses using the imputed

and non-imputed datasets. Also similar to results using the imputed dataset, mean CY-BOCS severity scores decreased to within the Mild range at post-treatment, and this reduction was maintained at follow-up.

### ***Parenting Outcomes***

Table 10 provides the covariate-adjusted within-group means for the five parenting outcome variables at post-treatment and 1-month follow-up, as well as the covariate-adjusted within-group change scores obtained from the analyses.

Using the imputed dataset, there was a marginally significant increase in APQ positive parenting ratings from pre-to post-treatment ( $\Delta M = 1.62$ ,  $SE = .81$ ,  $p = .054$ ); however, this increase was not maintained at follow-up. There was a significant increase in PT-OCD ratings from pre- to post-treatment ( $\Delta M = 5.71$ ,  $SE = 2.00$ ,  $p = .006$ ) that was maintained at follow-up ( $\Delta M = 4.97$ ,  $SE = 2.22$ ,  $p = .03$ ). There were no other significant changes in parenting outcome variables (i.e., APQ parental involvement, APQ inconsistent discipline, and PSOC scores) at post-treatment or follow-up for the CBT+PMT group.

In addition to the significant changes found when analyzing the imputed dataset, a greater number of significant changes were found when analyses were conducted using the non-imputed dataset. Specifically, there was a significant increase in APQ parental involvement ratings ( $\Delta M = 1.88$ ,  $SE = .74$ ,  $p = .02$ ) and PSOC ratings ( $\Delta M = 2.60$ ,  $SE = 1.12$ ,  $p = .03$ ) from pre-treatment to follow-up. There was a significant increase in APQ positive parenting from pre-to post-treatment ( $\Delta M = 1.60$ ,  $SE = .44$ ,  $p < .001$ ) and, similar to the results using the imputed dataset, a significant increase from pre-treatment to follow-up ( $\Delta M = 1.08$ ,  $SE = .48$ ,  $p = .03$ ). Also similar to the results using the imputed dataset, there was a significant increase in PT-OCD ratings from pre-treatment to post-treatment ( $\Delta M = 6.95$ ,  $SE = 2.02$ ,  $p = .002$ ) that was maintained at follow-up ( $\Delta M = 6.17$ ,  $SE = 2.17$ ,  $p = .008$ ). There were no other significant changes in parenting outcome variables at post-treatment or follow-up in the non-imputed dataset.

**Table 9 Adjusted Group Means and Within-Group Change in Primary Outcome Variables for CBT+PMT Treatment Group at Post-Treatment and Follow-Up**

Outcome Variable	Post-Treatment			1-Month Follow-Up		
	Adjusted group mean (SE)	Adjusted within-group change (SE)	95% CI	Adjusted group mean (SE)	Adjusted within-group change (SE)	95% CI
CY-BOCS						
Imputed ( <i>n</i> = 37)	14.11 (1.06)	<b>-9.37 (1.05)***</b>	<b>[-11.45, -7.29]</b>	13.94 (1.14)	<b>-9.54 (1.15)***</b>	<b>[-11.83, -7.25]</b>
Non-Imputed ( <i>n</i> = 32)	13.80 (1.11)	<b>-9.75 (1.13)***</b>	<b>[-12.00, -7.50]</b>	14.10 (1.15)	<b>-9.44 (1.18)***</b>	<b>[-11.80, -7.10]</b>
CD-POC						
Imputed ( <i>n</i> = 37)	9.55 (1.21)	<b>-6.61 (1.40)***</b>	<b>[-9.40, -3.83]</b>	11.18 (1.27)	<b>-4.98 (1.46)***</b>	<b>[-7.89, -2.08]</b>
Non-Imputed ( <i>n</i> = 29)	9.70 (1.28)	<b>-6.97 (1.28)***</b>	<b>[-9.50, -4.44]</b>	11.09 (1.28)	<b>-5.57 (1.28)***</b>	<b>[-8.11, -3.03]</b>
COIS-R						
Imputed ( <i>n</i> = 37)	24.78 (2.31)	<b>-9.52 (2.50)***</b>	<b>[-14.47, -4.57]</b>	17.94 (2.42)	<b>-16.38 (2.62)***</b>	<b>[-21.58, -11.18]</b>
Non-Imputed ( <i>n</i> = 29)	25.10 (2.48)	<b>-6.53 (2.48)**</b>	<b>[-11.40, -1.62]</b>	18.30 (2.48)	<b>-13.40 (2.48)***</b>	<b>[-18.30, -8.47]</b>
OFF						
Imputed ( <i>n</i> = 37)	23.56 (2.46)	<b>-6.24 (2.53)*</b>	<b>[-11.33, -1.14]</b>	21.81 (2.04)	<b>-7.99 (2.05)***</b>	<b>[-12.07, -3.82]</b>
Non-Imputed ( <i>n</i> = 28)	23.10 (2.26)	-3.41 (2.26)	[-7.91, 1.08]	22.10 (2.30)	-4.40 (2.30) <sup>†</sup>	[-8.98, 0.17]
FAS						
Imputed ( <i>n</i> = 37)	9.36 (1.31)	<b>-7.73 (1.54)***</b>	<b>[-10.79, -4.68]</b>	10.14 (1.43)	<b>-6.95 (1.63)***</b>	<b>[-10.20, -3.69]</b>
Non-Imputed ( <i>n</i> = 29)	9.15 (1.35)	<b>-7.51 (1.35)***</b>	<b>[-10.19, -4.83]</b>	10.37 (1.36)	<b>-6.29 (1.36)***</b>	<b>[-8.97, -3.60]</b>

Note. \* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001. † *p* = .059. CBT = cognitive-behavioral therapy; PMT = parent management training; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale. Significant within-group changes are bolded.

**Table 10 Adjusted Group Means and Within-Group Change in Parenting Outcome Variables for CBT+PMT Treatment Group at Post-Treatment and Follow-Up**

Outcome Variable	Post-Treatment			1-Month Follow-Up		
	Adjusted group mean (SE)	Adjusted within-group change (SE)	95% CI	Adjusted group mean (SE)	Adjusted within-group change (SE)	95% CI
APQ Involvement						
Imputed ( <i>n</i> = 37)	37.28 (0.95)	-0.40 (1.21)	[-2.85, 2.05]	37.86 (1.56)	0.18 (1.66)	[-3.30, 3.66]
Non-Imputed ( <i>n</i> = 27)	38.10 (0.69)	0.55 (0.69)	[-0.84, 1.95]	39.40 (0.74)	<b>1.88 (0.74)*</b>	<b>[0.37, 3.39]</b>
APQ Positive Parenting						
Imputed ( <i>n</i> = 37)	24.45 (0.77)	1.62 (0.81) <sup>†</sup>	[-0.03, 3.27]	24.04 (0.95)	1.22 (0.97)	[-0.77, 3.21]
Non-Imputed ( <i>n</i> = 27)	24.60 (0.44)	<b>1.60 (0.44)***</b>	<b>[0.71, 2.49]</b>	24.00 (0.48)	<b>1.08 (0.48)*</b>	<b>[0.11, 2.05]</b>
APQ Inconsistent Discipline						
Imputed ( <i>n</i> = 37)	12.95 (0.82)	-0.75 (0.81)	[-2.38, 0.88]	12.84 (0.77)	-0.86 (0.85)	[-2.59, 0.87]
Non-Imputed ( <i>n</i> = 27)	12.80 (0.64)	-0.67 (0.64)	[-1.97, 0.64]	12.30 (0.72)	-1.19 (0.72)	[-2.65, 0.28]
PSOC						
Imputed ( <i>n</i> = 37)	68.25 (2.33)	0.90 (2.22)	[-3.53, 5.33]	70.87 (2.34)	3.52 (2.29)	[-1.08, 8.11]
Non-Imputed ( <i>n</i> = 27)	68.00 (1.04)	0.50 (1.04)	[-1.62, 2.62]	70.10 (1.12)	<b>2.60 (1.12)*</b>	<b>[0.31, 4.89]</b>
PT-OCD						
Imputed ( <i>n</i> = 37)	55.28 (2.02)	<b>5.71 (2.00)**</b>	<b>[1.71, 9.72]</b>	54.54 (2.00)	<b>4.97 (2.22)*</b>	<b>[0.48, 9.46]</b>
Non-Imputed ( <i>n</i> = 28)	56.20 (2.02)	<b>6.95 (2.02)**</b>	<b>[2.83, 11.10]</b>	55.40 (2.17)	<b>6.17 (2.17)**</b>	<b>[1.74, 10.60]</b>

Note. \* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001. † *p* = .054. CBT = cognitive-behavioral therapy; PMT = parent management training; APQ = Alabama Parenting Questionnaire; PSOC = Parenting Sense of Competence Scale; PT-OCD = Parent Tolerance of Child Distress Scale. Significant within-group changes are bolded.

**Table 11 Adjusted Within-Group Means and Between-Group Differences in Primary Outcome Variables at Post-Treatment and Follow-Up**

Outcome Variable	Post-Treatment				1-Month Follow-Up			
	Adjusted group mean (SE)		Adjusted between-group difference (SE)		Adjusted group mean (SE)		Adjusted between-group difference (SE)	
	CBT-Only	CBT+PMT	CBT+PMT - CBT-Only	95% CI	CBT-Only	CBT+PMT	CBT+PMT - CBT-Only	95% CI
<b>CY-BOCS</b>								
Imputed (n = 117)	14.69 (0.71)	14.11 (1.06)	0.58 (1.28)	[-1.95, -3.11]	13.77 (0.72)	13.94 (1.14)	-0.17 (1.35)	[-0.17, -1.35]
Non-Imputed (n = 97)	14.50 (0.79)	13.80 (1.13)	0.68 (1.38)	[-2.05, 3.40]	14.00 (0.79)	14.10 (1.18)	-0.17 (1.43)	[-2.99, 2.66]
<b>CD-POC</b>								
Imputed (n = 117)	9.11 (0.80)	9.55 (1.21)	-0.44 (1.43)	[-3.28, 2.40]	9.79 (.89)	11.18 (1.27)	-1.39 (1.50)	[-4.36, 1.58]
Non-Imputed (n = 85)	8.72 (0.88)	9.70 (1.28)	-0.98 (1.55)	[-4.05, 2.10]	8.11 (.97)	11.09 (1.28)	-2.99 (1.61)	[-6.17, 0.20]
<b>COIS-R</b>								
Imputed (n = 117)	20.81 (1.64)	24.78 (2.31)	-3.99 (2.77)	[-9.50, 1.52]	19.19 (1.80)	17.94 (2.42)	1.26 (2.85)	[-4.40, 6.92]
Non-Imputed (n = 86)	20.00 (1.72)	25.10 (2.48)	-5.11 (3.02)	[-11.09, 0.86]	16.10 (1.85)	18.30 (2.48)	-2.20 (3.10)	[-8.34, 3.94]
<b>OFF</b>								
Imputed (n = 117)	21.09 (1.65)	23.56 (2.46)	-2.47 (3.32)	[-9.20, 4.25]	20.63 (2.12)	21.81 (2.04)	-1.18 (2.84)	[-6.87, 4.51]
Non-Imputed (n = 76)	17.60 (1.61)	23.10 (2.26)	-5.47 (2.81)	[-11.06, 0.11]	17.90 (1.71)	22.10 (2.30)	-4.17 (2.90)	[-9.94, 1.59]
<b>FAS</b>								
Imputed (n = 117)	8.13 (0.94)	9.36 (1.31)	-1.23 (1.52)	[-4.24, 1.78]	7.75 (0.91)	10.14 (1.43)	-2.40 (1.68)	[-5.74, 0.95]
Non-Imputed (n = 87)	7.24 (0.93)	9.15 (1.35)	-1.91 (1.64)	[-5.17, 1.35]	6.55 (0.99)	10.37 (1.36)	<b>-3.83 (1.68)*</b>	<b>[-7.16, -0.49]</b>

Note. \*  $p < .05$ . CBT = cognitive-behavioral therapy; PMT = parent management training; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale. Significant between-group difference is bolded.

## 2. Does CBT+PMT Result in Significantly Greater Change in Outcomes Compared to Those Yielded by CBT-Only?

Table 11 provides the covariate-adjusted within-group means for the five primary outcome variables at post-treatment and 1-month follow-up, as well as the covariate-adjusted between-group difference scores obtained from the analyses. Using the imputed dataset, there were no significant between-group differences in adjusted group means at post-treatment or follow-up. The CBT-only group had similar reductions in ratings on all primary outcome measures (i.e., CY-BOCS, CD-POC, COIS-R, OFF, and FAS). These reductions were also maintained at follow-up. When analyses were conducted using the non-imputed dataset, the general pattern of results did not differ, with the one exception that FAS ratings at follow-up were significantly lower in the CBT-only group ( $\Delta M = -3.83$ ,  $SE = 1.68$ ,  $p = .02$ ) relative to the CBT+PMT group. There were no other significant group differences at post-treatment or follow-up in the non-imputed dataset.

## 3. Can Pre-Treatment Characteristics and Quality of PMT Participation Predict Treatment Response?

### *Primary Outcomes*

Table 12 provides a summary of multiple hierarchical regression analyses testing predictors of primary outcome variables at post-treatment for the total sample. In the first block of each of the five models, the model containing only the pre-treatment value of the dependent variable was significant in predicting its respective post-treatment value (e.g., CY-BOCS scores at pre-treatment significantly predicted CY-BOCS scores at post-treatment), with  $R^2$ s ranging from .19 to .44 ( $ps < .001$ ).

After the remaining predictors were added in the second block, each model remained significant ( $R^2$ s = .25 – .52,  $ps < .001$  – .01); however, the change in  $R^2$  was only significant in the model predicting post-treatment CD-POC scores,  $\Delta R^2 = .07$ ,  $\Delta F(5, 76) = 2.34$ ,  $p = .05$ . The second block containing the additional predictors did not explain a significantly larger proportion of the variance in any other model ( $\Delta R^2$ s = .03 – .06,  $ns$ ).

In each of the final models, the pre-treatment value of the dependent variable remained a significant predictor of its respective post-treatment value ( $\beta$ s = .32 – .64,

**Table 12 Hierarchical Multiple Regression Model Summaries Testing Predictors of Primary Outcome Variables at Post-Treatment for Total Sample ( $n = 117$ )**

Dependent Variable		Independent Variable	$R^2$	$F$	$\Delta R^2$	$\Delta F$	$B$	$SE$	$\beta$	$t$
CY-BOCS Post	Block 1	CY-BOCS Pre	<b>.22</b>	<b>26.35***</b>			<b>0.62</b>	<b>0.12</b>	<b>.46</b>	<b>5.13***</b>
	Block 2	CY-BOCS Pre	<b>.28</b>	<b>6.01***</b>	.07	1.74	<b>0.56</b>	<b>0.13</b>	<b>.42</b>	<b>4.28***</b>
		CD-POC Pre					0.03	0.08	.05	0.35
		COIS-R Pre					0.03	0.05	.07	0.63
		FAS Pre					0.03	0.09	.05	0.39
		Age at Pre					<b>0.55</b>	<b>0.26</b>	<b>.21</b>	<b>2.11*</b>
		Gender					0.56	0.13	.42	4.28
CD-POC Post	Block 1	CD-POC Pre	<b>.44</b>	<b>63.68***</b>			<b>0.52</b>	<b>0.07</b>	<b>.66</b>	<b>7.98***</b>
	Block 2	CD-POC Pre	<b>.52</b>	<b>13.44***</b>	.08	2.34*	<b>0.50</b>	<b>0.09</b>	<b>.64</b>	<b>5.30***</b>
		CY-BOCS Pre					0.30	0.17	.16	1.80
		COIS-R Pre					-0.06	0.06	-.11	-1.04
		FAS Pre					0.10	0.10	.11	0.97
		Age at Pre					0.52	0.33	.14	1.55
		Gender					2.40	1.61	.13	1.49
COIS-R Post	Block 1	COIS-R Pre	<b>.26</b>	<b>28.85***</b>			<b>0.47</b>	<b>0.09</b>	<b>.51</b>	<b>5.37***</b>
	Block 2	COIS-R Pre	<b>.30</b>	<b>5.31***</b>	.03	0.71	<b>0.46</b>	<b>0.12</b>	<b>.50</b>	<b>3.98***</b>
		CY-BOCS Pre					0.46	0.35	.14	1.31
		CD-POC Pre					-0.02	0.19	-.02	-0.12
		FAS Pre					0.04	0.21	.03	0.20
		Age at Pre					0.38	0.69	.06	0.56
		Gender					3.32	3.33	.10	1.00

Dependent Variable		Independent Variable	<i>R</i> <sup>2</sup>	<i>F</i>	$\Delta R^2$	$\Delta F$	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
OFF Post	Block 1	OFF Pre	<b>.19</b>	<b>15.01<sup>***</sup></b>			<b>0.44</b>	<b>0.11</b>	<b>.43</b>	<b>3.87<sup>***</sup></b>
	Block 2	OFF Pre	<b>.25</b>	<b>2.79<sup>*</sup></b>	.06	0.80	<b>0.33</b>	<b>0.17</b>	<b>.32</b>	<b>2.01<sup>*</sup></b>
		CY-BOCS Pre					0.19	0.31	.08	0.62
		CD-POC Pre					0.04	0.18	.04	0.23
		COIS-R Pre					0.15	0.12	.21	1.33
		FAS Pre					-0.06	0.23	-.05	-0.27
		Age at Pre					0.17	0.60	.04	0.28
		Gender					3.87	3.06	.16	1.27
FAS Post	Block 1	FAS Pre	<b>.25</b>	<b>26.98<sup>***</sup></b>			<b>0.40</b>	<b>0.08</b>	<b>.50</b>	<b>5.19<sup>***</sup></b>
	Block 2	FAS Pre	<b>.31</b>	<b>5.64<sup>***</sup></b>	.06	1.28	<b>0.40</b>	<b>0.11</b>	<b>.50</b>	<b>3.79<sup>***</sup></b>
		CY-BOCS Pre					0.33	0.18	.20	1.85
		CD-POC Pre					-0.11	0.10	-.16	-1.07
		COIS-R Pre					0.07	0.06	.14	1.12
		Age at Pre					0.20	0.35	.06	0.58
		Gender					1.65	1.70	.10	1.00

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; OFF = OCD Family Functioning Scale; FAS = Family Accommodation Scale; Pre = pre-treatment; Post = post-treatment. Gender coding; female = 0, male = 1. Significant associations are bolded.

$ps < .001 - .049$ ). Youths' age significantly predicted post-treatment CY-BOCS scores ( $B = 0.55$ ,  $SE = 0.26$ ,  $\beta = .21$ ,  $p = .04$ ) in that older youth had higher CY-BOCS scores at post-treatment. For every 1-year increase in age, there was an increase of 0.55 units on the CY-BOCS. None of the additional pre-treatment characteristics were significant in predicting any of the primary outcome variables.

## **Parenting Outcomes**

**Predictors: Pre-Treatment Characteristics.** Table 13 provides a summary of multiple hierarchical regression analyses testing pre-treatment characteristic predictors of parenting outcome variables at post-treatment for the total sample. In the first block of each of the five models, the model containing only the pre-treatment value of the dependent variable was significant in predicting its respective post-treatment value (e.g., APQ parental involvement scores at pre-treatment significantly predicted APQ parental involvement scores at post-treatment), with  $R^2$ 's ranging from .34 to .72 ( $ps < .001 - .004$ ).

After the remaining predictors were added in the second block, only the models predicting post-treatment APQ parental involvement,  $R^2 = .83$ ,  $F(4,18) = 18.72$ ,  $p < .001$ , APQ positive parenting,  $R^2 = .56$ ,  $F(4,18) = 5.62$ ,  $p = .004$ , and PSOC,  $R^2 = .76$ ,  $F(4,18) = 14.22$ ,  $p < .001$ , remained significant; however, the models predicting APQ inconsistent discipline,  $R^2 = .38$ ,  $F(4,18) = 2.72$ ,  $p = .062$ , and PT-OCD,  $R^2 = .37$ ,  $F(4,18) = 2.64$ ,  $p = .068$ , scores were marginally significant. The change in  $R^2$  was only significant in the model predicting post-treatment APQ parental involvement,  $\Delta R^2 = .11$ ,  $\Delta F(3, 18) = 3.88$ ,  $p = .04$ . The second block containing the additional predictors did not explain a significantly larger proportion of the variance in any other model ( $\Delta R^2$ 's = .02 – .07, *ns*).

In each of the final models, the pre-treatment value of the dependent variable remained a significant predictor of its respective post-treatment value ( $\beta$ s = .58 – .86,  $ps < .001 - .009$ ). Pre-treatment CY-BOCS scores significantly predicted post-treatment APQ parental involvement ( $B = -0.26$ ,  $SE = 0.12$ ,  $\beta = -.29$ ,  $p = .04$ ) such that parents of youth with greater CY-BOCS scores at pre-treatment had lower parental involvement scores at post-treatment. For every 1-point increase in CY-BOCS scores, there was a decrease of 0.26 units on the APQ parental involvement scale. None of the additional pre-treatment characteristics were significant in predicting any of the parenting outcome variables at post-treatment.

**Table 13 Hierarchical Multiple Regression Model Summaries Testing Pre-Treatment Characteristic Predictors of Parenting Outcome Variables at Post-Treatment for CBT+PMT Group (*n* = 37)**

Dependent Variable		Independent Variable	<i>R</i> <sup>2</sup>	<i>F</i>	$\Delta R^2$	$\Delta F$	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
APQ INV Post	Block 1	APQ INV Pre	<b>.72</b>	<b>53.12<sup>***</sup></b>			<b>0.77</b>	<b>0.11</b>	<b>.85</b>	<b>7.29<sup>***</sup></b>
	Block 2	APQ INV Pre	<b>.83</b>	<b>18.72<sup>***</sup></b>	.11	3.88*	<b>0.73</b>	<b>0.09</b>	<b>.80</b>	<b>8.05<sup>***</sup></b>
		CY-BOCS Pre					<b>-0.26</b>	<b>0.12</b>	<b>-.29</b>	<b>-2.24*</b>
		CD-POC Pre					-0.03	0.08	-.06	-0.37
		COIS-R Pre					0.06	0.04	.20	1.53
APQ PP Post	Block 1	APQ PP Pre	<b>.48</b>	<b>19.53<sup>***</sup></b>			<b>0.63</b>	<b>0.14</b>	<b>.69</b>	<b>4.42<sup>***</sup></b>
	Block 2	APQ PP Pre	<b>.56</b>	<b>5.62<sup>**</sup></b>	.07	0.99	<b>0.61</b>	<b>0.16</b>	<b>.68</b>	<b>3.91<sup>***</sup></b>
		CY-BOCS Pre					-0.13	0.10	-.27	-1.31
		CD-POC Pre					0.01	0.07	.01	0.01
		COIS-R Pre					0.02	0.04	.12	0.51
APQ ID Post	Block 1	APQ ID Pre	<b>.34</b>	<b>10.94<sup>**</sup></b>			<b>0.84</b>	<b>0.25</b>	<b>.59</b>	<b>3.31<sup>**</sup></b>
	Block 2	APQ ID Pre	.38	2.72†	.04	0.33	<b>0.83</b>	<b>0.27</b>	<b>.58</b>	<b>3.13<sup>**</sup></b>
		CY-BOCS Pre					0.08	0.17	.12	0.50
		CD-POC Pre					-0.05	0.12	-.12	-0.39
		COIS-R Pre					0.05	0.06	.22	0.85
PSOC Post	Block 1	PSOC Pre	<b>.74</b>	<b>58.35<sup>***</sup></b>			<b>1.05</b>	<b>0.14</b>	<b>.86</b>	<b>7.64<sup>***</sup></b>
	Block 2	PSOC Pre	<b>.76</b>	<b>14.22<sup>***</sup></b>	.02	0.61	<b>1.05</b>	<b>0.14</b>	<b>.86</b>	<b>7.27<sup>***</sup></b>
		CY-BOCS Pre					-0.02	0.27	-.01	-0.06
		CD-POC Pre					-0.03	0.19	-.03	-0.17
		COIS-R Pre					-0.08	0.09	-.13	-0.82
PT-OCD Post	Block 1	PT-OCD Pre	<b>.34</b>	<b>10.64<sup>**</sup></b>			<b>0.62</b>	<b>0.19</b>	<b>.58</b>	<b>3.26<sup>**</sup></b>
	Block 2	PT-OCD Pre	.37	2.64†	.03	0.32	<b>0.62</b>	<b>0.21</b>	<b>.58</b>	<b>2.91<sup>**</sup></b>
		CY-BOCS Pre					-0.39	0.42	-.23	-0.93
		CD-POC Pre					0.21	0.30	.23	0.72
		COIS-R Pre					-0.04	0.15	-.07	-0.27

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . †  $p = .062$ . ‡  $p = .068$ . APQ = Alabama Parenting Questionnaire; INV = parental involvement; PP = positive parenting; ID = inconsistent discipline; PSOC = Parenting Sense of Competence Scale; PT-OCD = Parent Tolerance of Child Distress Scale; CY-BOCS = Children's Yale-Brown Obsessive Compulsive Scale; CD-POC = Coercive Disruptive Behavior Scale for Pediatric OCD; COIS-R = Child OCD Impact Scale – Revised; Pre = pre-treatment; Post = post-treatment. Significant associations are bolded.

**Predictors: Quality of PMT Participation.** Table 14 provides a summary of multiple hierarchical regression analyses testing quality of PMT participation predictors of parenting outcome variables at post-treatment for the total sample. Similar to analyses using pre-treatment characteristics as predictors, the first block of each of the five models was significant in predicting its respective post-treatment value, with  $R^2$ s ranging from .42 to .78 ( $ps \leq .001$ ). After the remaining predictors were added in the second block, each model remained significant ( $R^2$ s = .44 – .82,  $ps < .001$  – .02). The second block containing the additional predictors did not explain a significantly larger proportion of the variance in any of the models ( $\Delta R^2$ s = .01 – .10, *ns*).

Also similar to analyses using pre-treatment characteristics as predictors, the pre-treatment value of the dependent variable remained a significant predictor of its respective post-treatment value in each of the models ( $\beta$ s = .63 – .89,  $ps < .001$  – .002). There was a marginally significant negative association between PMT session engagement ratings and post-treatment PSOC scores ( $B = -4.96$ ,  $SE = 2.59$ ,  $\beta = -.27$ ,  $p = .07$ ) such that parents with higher engagement ratings had lower PSOC scores at post-treatment. None of the additional quality of PMT participation characteristics were significant in predicting any of the parenting outcome variables at post-treatment.

**Table 14 Hierarchical Multiple Regression Model Summaries Testing Quality of PMT Participation Predictors of Parenting Outcome Variables at Post-Treatment for CBT+PMT Group (*n* = 37)**

Dependent Variable		Independent Variable	<i>R</i> <sup>2</sup>	<i>F</i>	$\Delta R^2$	$\Delta F$	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>
APQ INV Post	Block 1	APQ INV Pre	<b>.71</b>	<b>53.80***</b>			<b>0.82</b>	<b>0.11</b>	<b>.84</b>	<b>7.34***</b>
	Block 2	APQ INV Pre	<b>.73</b>	<b>12.63***</b>	.02	.39	<b>0.78</b>	<b>0.13</b>	<b>.80</b>	<b>6.16***</b>
		Attendance					-0.30	0.79	-.05	-0.38
		Engagement					0.44	1.60	.05	0.27
		Homework				1.70	2.84	.10	0.60	
APQ PP Post	Block 1	APQ PP Pre	<b>.42</b>	<b>15.78***</b>			<b>0.66</b>	<b>0.17</b>	<b>.65</b>	<b>3.97***</b>
	Block 2	APQ PP Pre	<b>.44</b>	<b>3.69*</b>	.02	.22	<b>0.64</b>	<b>0.18</b>	<b>.63</b>	<b>3.51**</b>
		Attendance					-0.50	0.63	-.14	-0.79
		Engagement					0.26	1.29	.05	0.20
		Homework				0.23	2.19	.03	0.10	
APQ ID Post	Block 1	APQ ID Pre	<b>.46</b>	<b>20.69***</b>			<b>0.97</b>	<b>0.21</b>	<b>.70</b>	<b>4.55***</b>
	Block 2	APQ ID Pre	<b>.52</b>	<b>5.11**</b>	.03	.44	<b>0.99</b>	<b>0.24</b>	<b>.71</b>	<b>4.08***</b>
		Attendance					-0.44	0.79	-.10	-0.55
		Engagement					1.45	1.55	.21	0.94
		Homework				-2.65	2.72	-.22	-0.98	
PSOC Post	Block 1	PSOC Pre	<b>.78</b>	<b>79.18***</b>			<b>1.05</b>	<b>0.12</b>	<b>.89</b>	<b>8.90***</b>
	Block 2	PSOC Pre	<b>.82</b>	<b>21.73***</b>	.04	1.34	<b>1.05</b>	<b>0.13</b>	<b>.89</b>	<b>8.41***</b>
		Attendance					1.28	1.34	.10	0.96
		Engagement					-4.96	2.59	-.27	-1.92†
		Homework				4.64	4.33	.14	1.07	
PT-OCD Post	Block 1	PT-OCD Pre	<b>.45</b>	<b>17.96***</b>			<b>0.70</b>	<b>0.17</b>	<b>.67</b>	<b>4.24***</b>
	Block 2	PT-OCD Pre	<b>.55</b>	<b>5.74**</b>	.10	1.37	<b>0.72</b>	<b>0.17</b>	<b>.68</b>	<b>4.35***</b>
		Attendance					2.98	1.94	.25	1.54
		Engagement					-5.75	3.93	-.32	-1.46
		Homework				9.09	6.62	.29	1.37	

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . †  $p = .07$ . APQ = Alabama Parenting Questionnaire; INV = parental involvement; PP = positive parenting; ID = inconsistent discipline; PSOC = Parenting Sense of Competence Scale; PT-OCD = Parent Tolerance of Child Distress Scale; Pre = pre-treatment; Post = post-treatment. Significant associations are bolded.

## **PMT Treatment Evaluation and Parent Feedback**

Of the 37 families that participated in the PMT group, 30 provided evaluation ratings and/or open-ended responses to feedback prompts. Table 15 provides a summary of parent ratings on the PMT treatment evaluation survey.

### ***Rated Items***

Individual evaluation item ratings ranged from 1 (*very dissatisfied*) to 5 (*very satisfied*) across all participants; however, 2 (*somewhat dissatisfied*) was the minimum value for the majority of items (54%;  $n = 7$ ), and nearly all other items (46%;  $n = 6$ ) had a minimum value of 3 (*neutral*). Mean item ratings ranged from 4.27 to 4.80 across all items, falling solidly between *somewhat satisfied* (4) and *very satisfied* (5). Parents' overall impression of the PMT sessions ranged from 2 (*somewhat dissatisfied*) to 5, with a mean rating of 4.70.

### ***Open-Ended Responses***

**What Part of the Group Did You Find the Most Useful in Managing Your Child's Coercive/Disruptive OCD Behavior?** Participants listed a diversity of program components as being helpful. Fifteen participants (50%) mentioned open discussion of their difficulties with other parents and group facilitators. Thirteen participants (43%) mentioned the foundation of behavioral principles as a way of understanding the role of coercive/disruptive behavior and accommodation in OCD. Ten participants (33%) made general reference to the psychoeducation and variety of skills/strategies presented. Four participants (13%) mentioned structured reward systems and behavioral contracts. Two participants (7%) mentioned praise and "catching their child being good." Two participants (7%) mentioned parent role-play exercises to practice skills. Two participants (7%) mentioned psychoeducation for supporting their child's E/RPs. Two participants (7%) mentioned the individual phone check-ins.

**Table 15 Descriptive Statistics of Parent Feedback/Evaluation Questionnaire Multiple-Choice Responses**

Feedback Item	Range	<i>M</i>	<i>SD</i>	Mode
1. Delivery of information - How easy it was to understand the material.	3 – 5	4.80	0.48	5
2. Applicability of session information to your family/situation.	1 – 5	4.43	1.04	5
3. Breadth of strategies/skills taught.	2 – 5	4.53	0.78	5
4. Depth of information presented for strategies/skills.	3 – 5	4.53	0.68	5
5. Pacing and structure of session content.	2 – 5	4.37	0.81	5
6. Level of engagement and opportunity to participate in parent-only sessions.	2 – 5	4.53	0.86	5
7. Knowledge base of session facilitator.	3 – 5	4.80	0.48	5
8. Availability of session facilitator outside of sessions.	3 – 5	4.77	0.57	5
9. Volume of parent homework.	2 – 5	4.27	0.87	5
10. Applicability of parent homework.	3 – 5	4.43	0.73	5
11. Frequency of phone check-ins.	2 – 5	4.70	0.84	5
12. Duration of phone check-ins.	2 – 5	4.57	0.86	5
13. Overall impression of Thursday parent-only sessions.	2 – 5	4.70	0.70	5

Note. *n* = 30 respondents. Item response scale: 1 = *very dissatisfied*; 2 = *somewhat dissatisfied*; 3 = *neutral*; 4 = *somewhat satisfied*; 5 = *very satisfied*.

**What Part of the Group Did You Find the Least Useful in Managing Your Child’s Coercive/Disruptive OCD Behavior?** Responses for this item were more varied across respondents relative to the first item. Some responses for this item referred to specific skills presented. For example, two participants (7%) mentioned troubleshooting, two participants (7%) noted that rewards and/or point systems were not helpful with their adolescent, and one participant (3%) found it difficult to monitor and track undesirable behaviors. Five participants (17%) indicated that the materials did not apply well to their situation and/or they would have benefitted from more real-life examples in learning the materials.

Other responses referred to logistical issues with session format/delivery. For example, three participants (10%) noted that there was not adequate time to fully cover the volume of materials presented and/or that too much time was dedicated to parents’ sharing their experiences. One participant (3%) found it frustrating to hear the experiences of other parents whose children had much less severe symptom presentations. One participant (3%) found it frustrating that sessions often started late due to multiple parents not arriving on time.

It is notable that a majority of responses for this item were either neutral or positive in nature. Specifically, 11 participants (37%) either left the item blank or indicated that they did not find any specific components to be unhelpful (e.g., “N/A,” “None”). Five additional participants (17%) explicitly indicated that they found all of the program components to be useful.

**Is There Anything That Was Not Covered That Would Have Been Helpful in Managing Your Child’s Coercive/Disruptive OCD Behavior?** A small number of participants suggested additional areas for the program to address. For example, three participants (10%) suggested incorporating more information on how to deal with OCD when there are comorbid mood difficulties. Two participants (7%) suggested more information on “proactive” strategies for managing crises and/or how to respond when their child is completely noncompliant during an interaction (e.g., when “there is no backing down”). Two participants (7%) suggested more information regarding medication management for treating OCD. Two participants (7%) suggested support for how to talk about OCD with the child, family members, and/or peers. One participant (3%) suggested more support for siblings. One participant (3%) suggested additional information on differentiating normative teenage behavior from OCD-related behaviors. Interestingly, two participants (7%) suggested covering “Antecedent-Behavior-Consequence” (i.e., the “ABCs” of behavior) but acknowledged that they may have missed this portion of the materials.

It is also notable that, similar to the previous item, the majority of responses for this item were left blank or included positive comments. Specifically, 14 participants (47%) either left the item blank or indicated that they did not have any specific suggestions for additional areas to cover (e.g., “No,” “None”). Three additional participants (17%) explicitly indicated that the program addressed all topics/areas relevant to treating their child’s OCD.

**Is There Anything Else That You Would Change about the Group or Suggest Adding/Removing for Future Groups?** Most responses for this item were concerned with logistical aspects of program format/delivery. For example, eight participants (27%) suggested increasing treatment contact, such as making the overall program more than 12 sessions, having longer sessions (e.g., adding 30 minutes to session time) and phone check-ins (e.g., allowing up to 30 minutes), adding one-on-one

sessions and in-clinic practice, and/or offering additional booster sessions after the program is complete. Three participants (10%) suggested limiting the amount of time each parent may speak during roundtable check-ins in session. As well, two participants (7%) suggested offering PMT and CBT sessions on the same day each week and/or offering PMT sessions via webinar in order to reduce the burden of travel. Two participants (7%) suggested making the PMT group and/or the weekly phone check-ins optional.

Other suggestions included inviting a former group member (youth and/or parent) to share their experiences with managing OCD (1 participant; 3%), incorporating information on OCD to share with teachers (1 participant; 3%), and increasing focus on practical (i.e., “day-to-day”) aspects of managing OCD (1 participant; 3%). Two participants (7%) suggested offering more opportunities for youth and/or parents to socialize, either in/after sessions or by facilitating the exchange of contact information. Similar to previous items, seven participants (23%) left the item blank, and five participants (17%) indicated that they found all aspects of the group to be helpful and had no suggestions for improvement.

## **Chapter 4. Discussion**

This study aimed to examine the efficacy of a novel, group-based adjunctive PMT intervention specifically designed to address coercive and disruptive behavior problems among a sample of youth receiving family-based group CBT for pediatric OCD. Reducing coercive and disruptive behavior in youth with OCD is important because high levels of such behavior are consistently related to greater daily impairment and disruption to overall family life (Langley et al., 2010; Lebowitz, Omer, et al., 2011; S. E. Stewart et al., 2017; Storch, Lewin, et al., 2010; Storch et al., 2012) as well as poorer response to CBT and/or pharmacotherapy (Garcia et al., 2010; Geller et al., 2003; Storch, Merlo, Larson, Geffken, et al., 2008; Storch, Björgvinsson, et al., 2010). To our knowledge, this is the first study to examine the combined delivery of CBT+PMT with a relatively large sample (compared to existing studies) of youth and their families receiving treatment in a group format. This is also the first study to examine the relationships among a large number of child-, parent-, and family-level outcomes, quality of treatment participation, and other empirically supported predictors.

### **Summary of Findings**

#### ***PMT Intervention Delivery***

Overall, the PMT component of the augmented group was generally delivered as intended. With regard to treatment fidelity, all key learning objectives and treatment components were delivered across all groups, with the exception of two instances in which parent role-play exercises were not completed in the first session due to time constraints. High treatment fidelity is an important component of manualized interventions and has been found to be associated with greater improvements in parenting skills and reductions in disruptive behavior in PMT programs (Forgatch & DeGarmo, 2011; Hukkelberg & Ogden, 2013) as well as other individual- and family-focused interventions for youth externalizing behavior problems (Hogue et al., 2008; Huey et al., 2000).

Parents' participation in the treatment and adherence to treatment protocol was also generally high. PMT session attendance was good overall, with most families attending three or more sessions, and each caregiving parent attending at least one session in over 75% of families involved in the group. During sessions, most parents were

rated as being *mostly to completely engaged*, suggesting a high degree of active participation in session activities and discussion. Parent PMT homework ratings were also high on average, and most families completed nearly all of the scheduled phone check-ins, which also suggests a high degree of participation in treatment components outside of sessions. Previous research has demonstrated that high-quality participation in PMT interventions predicts improved outcomes for both the parent and child (Garvey et al., 2006; Nix et al., 2009). Therefore, these findings increase confidence that participants' response to the PMT program component was not adversely affected to a significant degree by poor treatment fidelity or a lack of active engagement by participants.

### **1. Does CBT+PMT Result in Statistically Significant Improvements in Treatment Outcomes?**

Consistent with expectations, families who received CBT+PMT experienced significant improvements in all primary outcome variables at post-treatment, and gains were maintained 1 month later. These results contribute to the mounting support for family inclusion in CBT treatment for pediatric OCD in both individual (Barrett et al., 2004; Freeman, Sapyta, et al., 2014; Merlo et al., 2009; Piacentini et al., 2011; Reynolds et al., 2013; Storch et al., 2016; Storch, Geffken, Merlo, Mann, et al., 2007) and group (Farrell et al., 2010, 2012; Fischer et al., 1998; Lavell et al., 2016; Martin & Thienemann, 2005; Selles et al., 2017) formats. Mean OCD symptom severity ratings decreased from the Moderate to the Mild range, suggesting that a significant number of youths maintained residual symptoms despite broadly responding to treatment. This finding is consistent with previous research (Pediatric OCD Treatment Study Team, 2004; Selles et al., 2017) and underscores the importance of considering a number of outcomes when conceptualizing treatment response for family-based approaches. That is, complete remission of OCD symptoms may not be a feasible goal; a more practical aim may be to address a broad set of factors that impact daily life for the youth and their family. Family-related maintaining factors (e.g., family accommodation, coercive parent-child dynamics) are therefore likely to be particularly important targets in reducing overall impairment.

Although the majority of studies examining family-based treatment formats have considered family factors as part of treatment outcome, most have been relatively narrow in their focus (McGrath & Abbott, 2019). The majority of these studies have targeted only one family-level outcome such as family accommodation (Benazon et al., 2002;

Fernández de la Cruz et al., 2013, 2015; Lewin, Park, et al., 2014; March et al., 1994; Nakatani et al., 2011; Pediatric OCD Treatment Study Team, 2004; Reynolds et al., 2013; Scahill et al., 1996; Storch et al., 2011; Storch, Lehmkuhl, et al., 2010; Turner et al., 2009, 2014) or family conflict (Sukhodolsky et al., 2013). Fewer treatment studies have focused on additional family factors beyond accommodation or conflict, such as problem-solving skills (Barrett et al., 2003, 2004, 2005; Farrell et al., 2010, 2012, 2016; Fischer et al., 1998; Lavell et al., 2016; Martin & Thienemann, 2005; Selles et al., 2017), blame/criticism (Freeman et al., 2008; Freeman, Sapyta, et al., 2014; Piacentini et al., 2011; Waters et al., 2001), and communication (Peris et al., 2017; Peris & Piacentini, 2013; Storch, Geffken, Merlo, Mann, et al., 2007). A recent meta-analysis (McGrath & Abbott, 2019) found that the number of family factors targeted in treatment significantly moderated outcomes on measures of family accommodation such that reduction in family accommodation was greater when treatments were designed to address more of these factors. As such, it is imperative that research continues to identify and target critical family variables in order to optimize treatment response.

The present results add to this body of research by suggesting that the combined delivery of CBT+PMT may lead to significant changes in the way parents interact with their children. Consistent with expectations, parents reported significant improvements in their ability to tolerate their children's distress, and these gains were maintained at follow-up. Parents' ability to manage their own distress when their children are upset has been found to be related to more consistent, warm, and/or responsive parenting practices (Del Vecchio et al., 2019; Krauthamer Ewing et al., 2019). It is perhaps not surprising that this skill has also been found to predict greater reductions in symptom severity among youth receiving family-based CBT for OCD (Selles et al., 2018). As reducing family accommodation has been identified as a key mechanism for change in the treatment of pediatric OCD (Strauss et al., 2015; Wu et al., 2016), it is important to consider that reductions in coercive and disruptive behaviors have been found to mediate the relationship between decreases in family accommodation and decreases in OCD-related impairment (Schuberth et al., 2018). In practical terms, attempting to reduce accommodation without fully addressing the difficulties that families may experience in doing so (e.g., angry or aggressive reactions from youth) may present significant barriers to success. OCD-related disruptive behaviors and family accommodation are thought to operate through a cycle of mutual reinforcement; youth are motivated to achieve relief

from obsessional distress, and parents are motivated to prevent or escape the discomfort that directly results from their children's distress (Meyer et al., 2017; Storch et al., 2012). Increasing parents' tolerance of their children's distress is therefore likely to be instrumental for family-based interventions that aim to address the parent-child dynamics that commonly perpetuate impairment.

Also consistent with expectations, there was a marginally significant increase in parents' positive parenting practices from pre- to post-treatment. Teaching parents to provide contingent positive reinforcement and communicate clear expectations is a foundational component of PMT-based interventions (McMahon & Patalich, 2018), and these results suggest that CBT+PMT leads to this change in parents of youth receiving family-based OCD treatment. Given the marginal increase and lack of maintenance at follow-up, however, this result should be interpreted with caution.

## ***2. Does CBT+PMT Result in Significantly Greater Change in Outcomes Compared to Those Yielded by CBT-Only?***

Contrary to expectations, participants who received CBT+PMT did not show significantly greater change in primary treatment outcomes than those who received CBT-Only. CBT-Only performed as well as CBT+PMT at post-treatment and at 1-month follow-up, suggesting that augmenting CBT with PMT may not provide significantly additive benefits, at least with regard to the primary outcomes examined during this timeframe and in the format in which CBT+PMT was delivered. These results are partially consistent with findings from the 6-subject clinical trial by Sukhodolsky and colleagues (2013); although participants whose parents received PMT in that study had greater reduction in OCD symptoms relative to the E/RP-only control group, both groups showed similar reductions on a measure of general disruptive behaviors post-treatment. As the study by Sukhodolsky and colleagues did not measure any additional child- (e.g., impairment), parent- (e.g., positive parenting practices), or family-level outcomes (e.g., family accommodation), no further comparisons can be made regarding treatment benefits of CBT+PMT.

It is important to note that studies that have illustrated the benefits of augmenting CBT with PMT differ from the current study (and each other) in several ways. The majority were single-subject case studies (Ale & Krackow, 2011; Ale & Whiteside, 2016; Lehmkuhl et al., 2009; Owens & Piacentini, 1998), with only the study by Sukhodolsky and colleagues

(2013) comparing CBT+PMT to a control group. The treatment protocols utilized in these studies also varied significantly, spanning 12–26 sessions over time periods ranging from 8 weeks to 8 months. Session lengths also differed across studies, ranging from 45–90 minutes. All other studies delivered therapy on an individual basis, with parents typically present and actively engaged with in-session E/RP components. As well, none of these studies measured family-level factors such as family accommodation or impairment. Whereas all but Ale and Krakow (2011) included some measure of general disruptive or externalizing behaviors, none used measures assessing the coercive and disruptive behaviors unique to pediatric OCD (i.e., CD-POC). The high degree of variability in the existing research therefore makes it difficult to draw firm conclusions regarding the generalizability of observed treatment gains in these studies. Confidence in the incremental benefits of PMT is also limited by the lack of comparison groups and narrow measurement of outcome variables across these studies.

It is also important to consider that the CBT intervention used in current study was found in previous research to lead to significant improvements across all main outcome variables (Selles et al., 2017). The CBT-only treatment included a strong family component and targeted parent-child conflict, albeit to a much lesser degree and depth than the augmented program. Despite the positive feedback from parents regarding the helpfulness of specific PMT components (e.g., structured reward systems, differential attention, role-plays), such benefits may not be apparent above and beyond those of the CBT program on the outcomes measured. It is possible that the augmented program led to unique improvements in parents' behaviors and attitudes towards their children's OCD-related behavior. The findings that CBT+PMT led to changes in parents' distress tolerance and positive parenting practices support this notion; however, these outcomes were not measured in the CBT-only condition and therefore no comparison can be made.

In light of these findings, it may not be feasible or necessary to implement CBT+PMT, at least in its present iteration. For example, attending separate PMT sessions and completing weekly check-ins is likely to present parents with an additional burden. CBT-based treatment that emphasizes family involvement and that addresses parent-child conflict to some degree may thus be sufficient to drive change in OCD severity as well as related disruptive behaviors and impairment. From a clinical perspective, however, the behavioral principles at the foundation of PMT (e.g., positive reinforcement, clear and consistent expectations, firm limit-setting) are well suited for inclusion in parents'

components of family-based CBT treatment. For example, parenting components of treatment may include opportunities for parents to practice delivering behavioral management techniques (e.g., giving effective commands, ignoring coercive behaviors, giving praise) with their own children during in-session E/RPs or alternately with other parents in role-play exercises.

### ***3. Can Pre-Treatment Characteristics and Quality of PMT Participation Predict Treatment Response?***

Contrary to expectations, few of the hypothesized predictor variables predicted post-treatment values of either the primary or parent treatment outcomes beyond each outcome's own baseline value. Age predicted post-treatment symptom severity in that older youth finished treatment with more severe OCD, which is consistent with results from a number of CBT trials (Selles et al., 2020; Turner et al., 2018). It has been hypothesized that adolescents' particular developmental stage and emerging needs for autonomy may affect the therapeutic alliance and their willingness to engage in what is often anxiety-provoking and arduous treatment (Caron & Robin, 2010). Children (as opposed to adolescents) may therefore be more amenable to CBT, particularly when there is substantial parental involvement (Torp et al., 2015). For example, the duration of affected youth's OCD is likely to be shorter in children, meaning that there has been less time for patterns of symptoms to become as entrenched in the daily lives of the child and their family. Parents of children are also more likely to have a greater degree of involvement and control over their children's lives, which may suggest that the relationship between severity and family accommodation is stronger in children compared to adolescents (Freeman et al., 2008; Lebowitz et al., 2012). Not surprisingly, previous research has suggested that the early identification of patients and family members who could benefit from interventions aimed at reducing family accommodation is likely to improve treatment outcomes (Gomes et al., 2014). Taken together, these findings support the notion that clinicians may face particular challenges when attempting to treat OCD in adolescents.

Higher pre-treatment OCD severity was also found to predict lower parental involvement at post-treatment. Given the highly impairing nature of pediatric OCD (Lack et al., 2009; Piacentini et al., 2003, 2007), it would follow that a more severe symptom presentation may limit opportunities for parents and their OCD-affected child to spend time engaging in activities other than those deemed most important to daily life (i.e., parental

involvement). Families may also avoid family or other social events, as well as discontinue the youth's participation in extracurricular activities, as a means of limiting exposure to obsessional triggers (Storch, Geffken, Merlo, Jacob, et al., 2007). As higher initial symptom severity is often predictive of poorer treatment response (Barrett et al., 2005; Garcia et al., 2010; Lewin et al., 2011; Piacentini et al., 2002; Rudy et al., 2014; Torp et al., 2015; Turner et al., 2018), this finding may be a practical implication of smaller improvements in symptoms. That is, parental involvement also may not improve as much for youth who enter treatment with more severe OCD.

It is interesting to note that there was a marginally significant relationship between lower parental engagement in PMT sessions and higher levels of parents' reported parenting competence at post-treatment. This finding is somewhat inconsistent with previous research suggesting that parents with a greater sense of self-efficacy are more likely to engage in a parenting intervention (Spoth et al., 1995). In the current study, it may be that parents whose confidence increased the most over treatment felt less compelled to engage in PMT sessions. Conversely, parents who were highly engaged in PMT sessions may have in part been doing so because their sense of parenting competence was not improving over treatment.

### ***PMT Treatment Evaluation and Parent Feedback***

Parent ratings on multiple-choice items indicated a high degree of satisfaction with the PMT intervention overall. On an item-level, average ratings for all 13 items fell between *somewhat satisfied* and *extremely satisfied*. These results suggest that parents were generally pleased with all aspects of the intervention, including the relevance of intervention content and how effectively it was delivered across sessions, the perceived competence of the group facilitator, and the demands placed on parents as part of group participation (e.g., homework, phone check-ins). This is consistent with previous research suggesting that treatments emphasizing positive approaches to behavior management (e.g., incentives for desired behaviors) tend to be evaluated as more acceptable by parents than those using only negative approaches (i.e., punishment-based; L. S. Stewart & Carlson, 2010). Parents' beliefs about the credibility and effectiveness of an intervention have been found to be related to higher attendance and/or engagement (Nock et al., 2007; Nock & Kazdin, 2005), which has clear implications for the success of the intervention. Indeed, parents' perceived usefulness of a parent training program has also been found

to be associated with changes in children's behavior problems and parents' sense of parenting competence at post-treatment (Graf et al., 2014).

Examination of parents' open-ended responses provides some insight into the specific treatment components parents found most and least useful in managing their children's behavior. Most commonly, parents tended to value the open discussion afforded by the group format and the opportunity to exchange experiences with other parents facing similar situations. Many parents also found it helpful to receive psychoeducation about behavioral principles and how they might apply within the context of OCD-related disruptive behavior and accommodation. On a practical level, learning specific behavioral skills (e.g., praise, structured reward systems) and having the opportunity to practice them in session through role-plays was also noted as helpful. These findings are in line with a large body of qualitative research in which parents report benefitting from both intervention content and the process of connecting with other parents (Butler et al., 2020; Kane et al., 2007). That is, in addition to the knowledge, skills, and understanding acquired via targeted intervention components, parents feel that they benefit from the acceptance, support, and additional insight afforded by fellow group members. However, the results of a meta-analysis and systematic review by Lindheim and colleagues (2014) suggest that, when examined empirically, little is known regarding the treatment components that predict, correlate with, or enhance skill acquisition and utilization in evidence-based parenting interventions for disruptive behavior.

Most parents did not identify any specific aspects of the treatment program as unhelpful; however, among the few that did, responses tended to fall under two general themes. Some parents felt that certain skills or concepts were difficult to implement (e.g., tracking/monitoring symptoms, troubleshooting) or were not relevant to their family situation. As well, some parents were dissatisfied with logistical issues common to a group format (e.g., how much time was allotted to discussion vs. instruction). These findings are understandable given that tailoring program content to meet the individual needs of families is of particular importance to parents (Butler et al., 2020). This notion was also reflected in some of the responses of the small number of parents who indicated that important areas were not addressed in the treatment protocol. In particular, some parents suggested additional education regarding specific issues not necessarily shared by other group members (e.g., comorbidities, medication management, sibling support).

Parents' suggestions for improving future iterations of the PMT group provided additional insight into the variability of needs among group members. Several parents suggested increasing treatment contact time (e.g., longer sessions/check-ins, additional sessions). Coupled with the positive ratings made by parents on rated items, this finding might suggest that these parents valued the treatment and believed it to be helpful. It may also reflect the severity of their child's OCD while approaching the end of treatment and the reality that some youth may not respond to a particular course of treatment. Other suggestions included making aspects of the treatment optional (e.g., PMT sessions, check-ins) or reducing barriers to attending parent-only sessions (e.g., delivering PMT via webinar). These suggestions are not surprising given the burden of attending parent-only session and completing phone check-ins in addition to weekly CBT sessions. It is not uncommon for the participation of highly interested and motivated parents to be hindered by practical barriers such as work, childcare, and transportation difficulties (Mendez et al., 2009). Fortunately, there have been promising results from studies examining the effectiveness of CBT for OCD delivered in completely webcam- (Comer et al., 2017; Storch et al., 2011) and telephone-based (Nair et al., 2019; Turner et al., 2009, 2014) formats. Alternately, CBT appears to remain effective in treating OCD when delivered in a short-term intensive format (Storch, Geffken, Merlo, Mann, et al., 2007; Storch, Lehmkuhl, et al., 2010; Whiteside et al., 2014; Whiteside & Jacobsen, 2010), which may also include e-therapy maintenance sessions after the main intervention period (Farrell et al., 2016). The results of a recent meta-analysis by Florean and colleagues (2020) also suggest that online PMT-based interventions are as effective as those delivered face-to-face in reducing child/adolescent disruptive behavior and improving parenting behavior, parent distress, and a parenting efficacy. Establishing a variety of similarly effective options may thus assist in providing individual families with treatments that serve to address OCD within their particular family context.

## **Strengths and Limitations**

The conclusions drawn in the current study are supported by its many strengths. Although small in absolute terms, the sample size of 117 participants is significantly larger than all existing studies examining CBT+PMT, increasing confidence in the generalizability of study findings. Using IPTWs in comparing treatment response between CBT-only and CBT+PMT groups affords the estimation of causal effects in lieu of

randomization (Hernán & Robins, 2006). The comprehensive measurement of a robust array of outcomes provides insight into the many child-, parent-, and family-level factors that are salient to the daily life of families affected by pediatric OCD. The present research is also the first among studies examining CBT+PMT to incorporate a number of such variables, in addition to the quality of parents' participation in the treatment process, as potential predictors of treatment response. As well, this is the first study examining the efficacy of CBT+PMT to utilize OCD-specific measures of coercive/disruptive behaviors (i.e., CD-POC) and impairment (i.e., COIS-R, OFF). In relying on more general measures of disruptive and externalizing behaviors, previous studies are unlikely to have adequately captured the unique presentation of OCD-related disruptive behavior and its impact on the family. Including a follow-up assessment after the completion of treatment also provided information regarding the degree to which treatment gains were sustained after the completion of treatment. Finally, whereas previous studies examined CBT+PMT in individual formats, the current study explored an alternate (i.e., group) format of family-based treatment for pediatric OCD.

Notwithstanding the strengths of this study, the present results must be considered within the context of a number of limitations. First, the open trial format lacked randomization, which is the cornerstone of clinical trials aiming to test the efficacy of a given intervention. Advanced statistical methods utilizing propensity scores and IPTW are considered feasible approaches for addressing confounding bias in non-randomized samples, particularly in quasi-experimental developmental studies where randomization is not possible (Thoemmes & Ong, 2016). However, the validity of such methods is dependent on entering relevant variables when creating propensity scores, allowing the possibility that important variables may be unmeasured or that too much data for an important variable may be missing. For example, some potential variables (e.g., family-level impairment, comorbidities, family history of OCD) were unable to be entered when generating propensity scores due to higher rates of missing data. More importantly, however, the use of more rigorous experimental manipulation (e.g., randomization, placebo control, participant blinding) would afford a more definitive test regarding the efficacy and specificity of CBT+PMT.

Second, all data other than symptom severity ratings were based on parent report. Despite providing a consistent perspective, relying on parents as sole informants limited insight into children's perceptions of the impact of their OCD and of parents'

behaviors/attitudes. It is also possible that the use of a single informant inflated associations due to shared method variance. Previous research has found that ratings of youth mental health and behavior problems often differ between parent, teacher, and/or youth self-report (Gross et al., 2004; Maurizi et al., 2012). Perceptions of parenting behaviors and the parent-child relationship also commonly vary among family members (Gerlsma et al., 1997; Maurizi et al., 2012). It is possible that different informants might be better suited to report on different features related to the family's experience with OCD. Studies on the concordance of youth and parent reporting have highlighted a number of factors to consider when assessing OCD symptom severity and related impairment. For example, older children and adolescents are often better able to hide compulsions from parents (Rapoport et al., 2000), causing parent reports to miss critical aspects of the youth's illness presentation. Conversely, children (compared to adolescents) tend to demonstrate poorer insight into their OCD (Lewin et al., 2010; Selles et al., 2014), suggesting that parent report may be more reliable in such circumstances. Storch and colleagues (2015) found greater disagreement between parent and youth self-reports of impairment in a sample of 6–17-year-olds ( $M_{age} = 12.74$ ) when youth were younger or had lower OCD symptom severity, more control over OCD symptoms, and/or less insight. The authors were not able to objectively determine whose perspective was most accurate when reports disagreed, which underscores the importance of considering multiple perspectives across various contexts in assessing the clinical presentation of OCD. Results of the current study may therefore primarily represent parents' perceptions of change.

Third, parenting outcomes were not measured in the CBT-only group. Given the specialized nature of PMT-based interventions in helping parents to develop more effective skills in coping with and managing disruptive behaviors in their children, one might expect there to be differences in the degree to which parents benefit relative to interventions lacking such components. Although the current study examined changes in multiple parenting outcomes before and after CBT+PMT, the lack of measurement of parenting in the comparison group limits potential conclusions regarding the differential effects of each intervention on parents' attitudes and behaviors. As such, the incremental impact of PMT on parents of youth with OCD beyond that of CBT is unclear.

Fourth, the quality of the family climate (e.g., family cohesion, blame, hostility) was not measured in the present study. Despite gaining some insight into family dynamics by

measuring parenting behaviors and family functioning, the present research can not speak directly to parents' and/or youth's views regarding the family environment as a whole. Hostility and low cohesion among family members are commonly associated with coercive and disruptive behaviors (Langley et al., 2010; Peris, Benazon, et al., 2008; Storch et al., 2009) and are predictive of poor treatment response (Peris et al., 2012; Peris & Piacentini, 2014). PMT-based interventions have been shown to lead to improvements in family cohesion (Hagen et al., 2011; Scavenius et al., 2020). Without examining changes in beliefs and attitudes regarding the family climate, however, it is unclear whether CBT+PMT produces similar changes in families faced with the disruptive behaviors and resultant family conflict that is unique to pediatric OCD. Further, it is unknown whether variations in the degree of family conflict at pre-treatment relate to the efficacy of the augmented treatment relative to CBT-Only.

Fifth, measurement of treatment outcomes was limited to three data points: before and after treatment and at 1-month follow-up. Without repeated measurement beyond the initial follow-up assessment, there is limited insight into the longitudinal course of outcomes. For example, it is important to know whether gains seen during treatment are sustained long-term. Given the focus on long-term skill building in both CBT and PMT, it may also be important to examine whether the benefits of treatment become more evident over time as skills are mastered and families develop a greater sense of competence in managing symptoms. It is positive that some other family-based treatment studies have included measurements beyond 1-month follow-up, including assessments at 3 months (Lewin, Park, et al., 2014; Peris & Piacentini, 2013; Scahill et al., 1996; Storch, Geffken, Merlo, Mann, et al., 2007; Storch, Lehmkuhl, et al., 2010; Turner et al., 2014; Waters et al., 2001), 5 months (Whiteside & Jacobsen, 2010), 6 months (Comer et al., 2017; Farrell et al., 2012, 2016; Fischer et al., 1998; Piacentini et al., 2011), 9 months (Franklin et al., 1998), 12 months (Hudson et al., 2015; Lavell et al., 2016), and 18 months (Barrett et al., 2004, 2005). The lack of assessments during the course of the treatment program (e.g., weekly, at midpoint) also precludes a more detailed understanding of the ways in which certain outcomes may change during the process of therapy. For example, it is common that when parents begin to implement behavioral management strategies, disruptive behavior becomes more severe or frequent for a short period before then decreasing in frequency/intensity (i.e., an extinction burst; Barkley, 2013; Barkley & Robin, 2014). Similarly, youth often experience an increase in obsessional anxiety when beginning to

engage in E/RPs, which may trigger subsequent increases in ritual engagement and bids for family accommodation (Gillihan et al., 2012). Therefore, without examining change within the treatment process, it is unclear whether such phenomena may ultimately affect treatment success.

Sixth, it should be noted that the treatment utilized in this study occurred weekly in group format, and the PMT intervention was delivered concurrently with CBT. Although this format allowed a comprehensive treatment to be delivered in a relatively short period of time, a number of alternate formats have shown success in treating OCD. Such variations include those administered individually, via webcam/telephone, and in short-term intensive formats (McGrath & Abbott, 2019). For those studies incorporating PMT in CBT-based treatment, parent training has either been implemented concurrently (Ale & Krackow, 2011; Ale & Whiteside, 2016; Owens & Piacentini, 1998) or prior to CBT (Lehmkuhl et al., 2009; Sukhodolsky et al., 2013). Results may therefore not generalize across all delivery formats and modalities. Given the complexity of parent-child dynamics associated with coercive and disruptive behaviors in the maintenance of OCD symptom severity, it is plausible that families experiencing a high degree of such behaviors may benefit more from a greater degree of individualized attention and coaching. Implementing PMT prior to beginning CBT and E/RPs may also be better suited to strengthen adherence to treatment protocol than delivering both interventions in tandem. As well, the recent COVID-19 public health crisis has been a major catalyst in the adjustment of well-established OCD programs to telehealth-based delivery (Sequeira et al., 2020). Thus, the present results may not adequately represent the potential for CBT+PMT to provide significant additive benefits within any number of such alternate treatment formats.

Finally, despite utilizing a much larger sample than other studies examining CBT+PMT, the sample size lacked the statistical power required to detect small treatment effects. The use of multiple statistical comparisons given the limited sample size (and lack of adjustment for multiple statistical tests) also increased risk of type I errors in the present results, and therefore results should be interpreted with caution. Because of these limitations, it was not possible to robustly investigate potential predictors and moderators of treatment response. For example, all parents who participated in CBT+PMT were required to attend PMT sessions and complete check-ins regardless of whether their children were displaying significant disruptive behavior problems; it is unclear whether families experiencing these difficulties benefitted more from the augmented program. A

number of empirically supported predictors also could not be examined in the present research due to high rates of missing data (i.e., depressive symptoms, internalizing/externalizing behaviors, comorbidities, and family environment) or a lack of measurement (e.g., sleep problems, insight into symptoms, parental rejection). As such, the current study cannot provide insight into whether previously established predictors and moderators of CBT (Kemp et al., 2020; Turner et al., 2018) extend to CBT+PMT, and in turn, who may be most or least suited to receive PMT as an adjunct to CBT.

## **Future Directions**

There are a number of considerations that may be of benefit when designing CBT+PMT intervention trials in the future. It is important to acknowledge that coercive and disruptive behavior problems tend to be more common in children (Ale & Whiteside, 2016), and strategies for managing disruptive behavior tend to differ somewhat between children and adolescents (Barkley, 2013; Barkley & Robin, 2014). For example, collaborative approaches such as behavioral contracts and troubleshooting among parents and youth may be better suited for adolescents. It may thus be beneficial for future trials to utilize a narrower age group or to adapt and examine separate PMT interventions for children and adolescents. RCTs are also needed to draw more definitive conclusions regarding the efficacy of such interventions. Families of youth may be screened at intake regarding the presence of coercive and disruptive behavior problems and/or parents' behavioral management skills. Those families most suited for the intervention might then be randomly assigned to either receive the PMT intervention or to a control group (i.e., waitlist or placebo therapy). Given that a primary objective of PMT in this context is to reduce the disruptive behaviors that interfere with parents reducing accommodations and guiding their children through E/RPs (i.e., enhance CBT treatment adherence), it would likely be advisable for those randomized to PMT to receive treatment prior to initiating CBT. Whereas the current study included four PMT sessions, the number of parent-only PMT sessions implemented prior to CBT in other studies has varied from three (Lehmkuhl et al., 2009) to six (Sukhodolsky et al., 2013) sessions. Therefore, future studies may consider comparing protocols of various length in order to determine what may be the optimal dosage needed for adequate skill development. CBT+PMT may also be adapted to various delivery formats (e.g., individual, telehealth-based) so as to afford families options based on their individual needs and logistical limitations.

Future research may also benefit from certain considerations regarding data collection. Measuring additional child-, parent-, and family-level factors (e.g., family cohesion/discord, youth insight into symptoms) will be helpful in understanding how patients' attitudes and behaviors change over the course of treatment. Data collection should occur through a combination of parent-, child-, and clinician-rated measures in order to provide greater insight into how perceptions may differ between youth and parents, and whether such differences affect treatment response. Including youth report is likely to be particularly important among families of adolescents given their ability to hide symptoms and the normative process of individuation that occurs during this developmental period (Rapoport et al., 2000). It will also be helpful to measure outcomes more frequently, both during treatment and extending for some time after treatment completion. Doing so will afford the use of intensive multivariate longitudinal analyses (e.g., growth curve modeling, growth mixture modeling) to examine associations among changes. Such methods can assist in clarifying how treatment targets may change among patients both during and beyond the intervention, as well as what factors may be related to individual variations in that change. Continuing to measure outcomes long after treatment has finished (e.g., 18 months) will also provide valuable information regarding the degree to which benefits are sustained or may build up over time.

Finally, given that CBT is generally accepted as an effective therapeutic framework for treating pediatric OCD (Storch et al., 2020), determining “what works best for whom” has been identified as an essential goal for ongoing intervention research (Freeman et al., 2018; Freeman, Garcia, et al., 2014). In what may be the most comprehensive systematic review of RCTs and meta-analyses to date, Kemp and colleagues (2020) identified a number of characteristics that may moderate the efficacy of psychosocial treatment for pediatric OCD. These include demographic characteristics such as age and ethnicity; family history of OCD; baseline OCD symptom severity; and other co-occurring concerns such as tic and anxiety disorders, autism spectrum disorder, and peer problems. Aspects of treatment format and modality such as individual vs. group treatment, duration of intervention time, and degree of family involvement have also been found to moderate treatment response; however, these results have not been consistent across studies and should be examined further. Future studies might also consider examining some of the patient characteristics that have been found to predict or moderate response to PMT interventions in youth with more traditional disruptive behavior problems. These have

included family socioeconomic status, parents' mental health, and the quality of the parent-child relationship (Dedousis-Wallace et al., 2020). Ultimately, it will be important to continue to develop our understanding of both the patient- and program-level factors that predict or affect an individual family's success in treatment. Doing so may better inform decisions regarding who should receive what types of treatment, with the ultimate goal of creating efficient and sustainable supports for OCD-affected families.

## **Conclusions**

To summarize, this was the first study to examine the efficacy of a novel, group-based adjunctive parenting intervention designed to address coercive and disruptive behavior problems among youth receiving treatment for OCD. Disruptive behavior is common in children with OCD and often interferes with treatment success and family-wide functioning. CBT+PMT, at least in the present format and to a 1-month follow-up, may not provide incremental benefits beyond family-based CBT alone; however, the results of this research suggest that elements comprising PMT are potentially of value to parents in supporting their children's treatment. As research continues to move forward in identifying the most important components of family-based OCD treatment, these results suggest that CBT+PMT may contribute to improvements in parents' ability to cope with and address OCD-related disruptive behavior while encouraging healthy coping in their children. Future studies are needed to better understand the most effective and feasible ways to incorporate key PMT components into CBT-based interventions, with the ultimate goal of catering treatments to the unique needs of individual families affected by pediatric OCD.

## References

- Abramovitch, A., Dar, R., Mittelman, A., & Wilhelm, S. (2015). Comorbidity between attention deficit/hyperactivity disorder and obsessive-compulsive disorder across the lifespan: A systematic and critical review. *Harvard Review of Psychiatry*, 23(4), 245–262. <https://doi.org/10.1097/HRP.0000000000000050>
- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms & profiles*. University of Vermont, Research Center for Children, Youth, & Families.
- Ale, C. M., & Krackow, E. (2011). Concurrent treatment of early childhood OCD and ODD: A case illustration. *Clinical Case Studies*, 10(4), 312–323. <https://doi.org/10.1177/1534650111420283>
- Ale, C. M., & Whiteside, S. P. H. (2016). Treatment of comorbid disruptive behavior in a youth with obsessive-compulsive disorder. In E. A. Storch & A. B. Lewin (Eds.), *Clinical handbook of obsessive-compulsive and related disorders: A case-based approach to treating pediatric and adult populations*. (pp. 357–370). Springer International Publishing. [https://doi.org/10.1007/978-3-319-17139-5\\_24](https://doi.org/10.1007/978-3-319-17139-5_24)
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Author.
- Austin, P. C. (2011). An introduction to propensity score methods for reducing the effects of confounding in observational studies. *Multivariate Behavioral Research*, 46(3), 399–424. <https://doi.org/10.1080/00273171.2011.568786>
- Barkley, R. A. (1997). *Defiant children: A clinician's manual for assessment and parent training* (2nd ed.). The Guilford Press.
- Barkley, R. A. (2013). *Defiant children: A clinician's manual for assessment and parent training* (3rd ed.). The Guilford Press.
- Barkley, R. A., Edwards, G. H., & Robin, A. L. (1999). *Defiant teens: A clinician's manual for assessment and family intervention*. The Guilford Press.
- Barkley, R. A., & Robin, A. L. (2014). *Defiant teens: A clinician's manual for assessment and family intervention* (2nd ed.). The Guilford Press.
- Barnard, J., & Rubin, D. B. (1999). Small-sample degrees of freedom with multiple imputation. *Biometrika*, 86(4), 948–955. <http://www.jstor.org/stable/2673599>.
- Barrett, P., Farrell, L. J., Dadds, M., & Boulter, N. (2005). Cognitive-behavioral family treatment of childhood obsessive-compulsive disorder: Long-term follow-up and predictors of outcome. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(10), 1005–1014. <https://doi.org/10.1097/01.chi.0000172555.26349.94>

- Barrett, P., Farrell, L. J., Pina, A. A., Peris, T. S., & Piacentini, J. (2008). Evidence-based psychosocial treatments for child and adolescent obsessive-compulsive disorder. *Journal of Clinical Child and Adolescent Psychology, 37*(1), 131–155. <https://doi.org/10.1080/15374410701817956>
- Barrett, P., Healy, L., & March, J. S. (2003). Behavioral avoidance test for childhood obsessive-compulsive disorder: A home-based observation. *American Journal of Psychotherapy, 57*(1), 80–100. <https://doi.org/10.1176/appi.psychotherapy.2003.57.1.80>
- Barrett, P., Healy-Farrell, L. J., & March, J. S. (2004). Cognitive-behavioral family treatment of childhood obsessive-compulsive disorder: A controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*(1), 46–62. <https://doi.org/10.1097/00004583-200401000-00014>
- 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? *Journal of Child Psychology and Psychiatry, 43*(5), 597–607. <https://doi.org/10.1111/1469-7610.00049>
- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software, 67*(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>
- Baydar, N., Reid, M. J., & Webster-Stratton, C. (2003). The role of mental health factors and program engagement in the effectiveness of a preventive parenting program for Head Start mothers. *Child Development, 74*(5), 1433–1453. <https://doi.org/10.1111/1467-8624.00616>
- Benazon, N. R., Ager, J., & Rosenberg, D. R. (2002). Cognitive behavior therapy in treatment-naïve children and adolescents with obsessive-compulsive disorder: An open trial. *Behaviour Research and Therapy, 40*(5), 529–539. [https://doi.org/10.1016/S0005-7967\(01\)00064-X](https://doi.org/10.1016/S0005-7967(01)00064-X)
- Brown, H. M., Lester, K. J., Jassi, A., Heyman, I., & Krebs, G. (2015). Paediatric obsessive-compulsive disorder and depressive symptoms: Clinical correlates and CBT treatment outcomes. *Journal of Abnormal Child Psychology, 43*(5), 933–942. <https://doi.org/10.1007/s10802-014-9943-0>
- Butler, J., Gregg, L., Calam, R., & Wittkowski, A. (2020). Parents' perceptions and experiences of parenting programmes: A systematic review and metasynthesis of the qualitative literature. *Clinical Child and Family Psychology Review, 23*(2), 176–204. <https://doi.org/10.1007/s10567-019-00307-y>
- Calvocoressi, L., Mazure, C. M., Kasl, S. V., Skolnick, J., Fisk, D., Vegso, S. J., Van Noppen, B. L., & Price, L. H. (1999). Family accommodation of obsessive-compulsive symptoms: Instrument development and assessment of family behavior. *Journal of Nervous and Mental Disease, 187*(10), 636–642. <https://doi.org/10.1097/00005053-199910000-00008>

- Caporino, N. E., Morgan, J., Beckstead, J., Phares, V., Murphy, T. K., & Storch, E. A. (2012). A structural equation analysis of family accommodation in pediatric obsessive-compulsive disorder. *Journal of Abnormal Child Psychology*, *40*(1), 133–143. <https://doi.org/10.1007/s10802-011-9549-8>
- Caron, A., & Robin, J. (2010). Engagement of adolescents in cognitive–behavioral therapy for obsessive–compulsive disorder. In D. Castro-Blanco & M. S. Karver (Eds.), *Elusive alliance: Treatment engagement strategies with high-risk adolescents*. (pp. 159–183). American Psychological Association. <https://doi.org/10.1037/12139-006>
- Cartwright-Hatton, S., McNally, D., Field, A. P., Rust, S., Laskey, B., Dixon, C., Gallagher, B., Harrington, R., Miller, C., Pemberton, K., Symes, W., White, C., & Woodham, A. (2011). A new parenting-based group intervention for young anxious children: Results of a randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, *50*(3), 242–251. <https://doi.org/10.1016/j.jaac.2010.12.015>
- Chambless, D. L., Bryan, A. D., Aiken, L. S., Steketee, G., & Hooley, J. M. (2001). Predicting expressed emotion: A study with families of obsessive–compulsive and agoraphobic outpatients. *Journal of Family Psychology*, *15*(2), 225–240. <https://doi.org/10.1037/0893-3200.15.2.225>
- Comer, J. S., Furr, J. M., Kerns, C. E., Miguel, E., Coxe, S., Elkins, R. M., Carpenter, A. L., Cornacchio, D., Cooper-Vince, C. E., DeSerisy, M., Chou, T., Sanchez, A. L., Khanna, M., Franklin, M. E., Garcia, A. M., & Freeman, J. B. (2017). Internet-delivered, family-based treatment for early-onset OCD: A pilot randomized trial. *Journal of Consulting and Clinical Psychology*, *85*(2), 178–186. <https://doi.org/10.1037/ccp0000155>
- Dedousis-Wallace, A., Drysdale, S. A., McAloon, J., & Ollendick, T. H. (2020). Parental and familial predictors and moderators of parent management treatment programs for conduct problems in youth. *Clinical Child and Family Psychology Review*. Advance online publication. <https://doi.org/10.1007/s10567-020-00330-4>
- Del Vecchio, T., Pochtar, R., & Jablonka, O. (2019). Mothers' tolerance of own and child distress: Associations with discipline practices. *Parenting: Science and Practice*, *20*(1), 53–68. <https://doi.org/10.1080/15295192.2019.1694829>
- Dumas, J. E., Nissley-Tsiopinis, J., & Moreland, A. D. (2007). From intent to enrollment, attendance, and participation in preventive parenting groups. *Journal of Child and Family Studies*, *16*(1), 1–26. <https://doi.org/10.1007/s10826-006-9042-0>
- Edwards, R. C., & Hans, S. L. (2015). Infant risk factors associated with internalizing, externalizing, and co-occurring behavior problems in young children. *Developmental Psychology*, *51*(4), 489–499. <https://doi.org/10.1037/a0038800>

- Eisenberg, N., Chang, L., Ma, Y., & Huang, X. (2009). Relations of parenting style to Chinese children's effortful control, ego resilience, and maladjustment. *Development and Psychopathology*, 21(2), 455–477. <https://doi.org/10.1017/S095457940900025X>
- Enders, C. K. (2013). Dealing with missing data in developmental research. *Child Development Perspectives*, 7(1), 27–31. <https://doi.org/10.1111/cdep.12008>
- Engle, J. M., & McElwain, N. L. (2011). Parental reactions to toddlers' negative emotions and child negative emotionality as correlates of problem behavior at the age of three. *Social Development*, 20(2), 251–271. <https://doi.org/10.1111/j.1467-9507.2010.00583.x>
- Essau, C. A., Sasagawa, S., & Frick, P. J. (2006). Psychometric properties of the Alabama Parenting Questionnaire. *Journal of Child and Family Studies*, 15(5), 597–616. <https://doi.org/10.1007/s10826-006-9036-y>
- Farrell, L. J., Oar, E. L., Waters, A. M., McConnell, H., Tiralongo, E., Garbharran, V., & Ollendick, T. (2016). Brief intensive CBT for pediatric OCD with E-therapy maintenance. *Journal of Anxiety Disorders*, 42, 85–94. <https://doi.org/10.1016/j.janxdis.2016.06.005>
- Farrell, L. J., Schlup, B., & Boschen, M. J. (2010). Cognitive–behavioral treatment of childhood obsessive–compulsive disorder in community-based clinical practice: Clinical significance and benchmarking against efficacy. *Behaviour Research and Therapy*, 48(5), 409–417. <https://doi.org/10.1016/j.brat.2010.01.004>
- Farrell, L. J., 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 Research*, 199(2), 115–123. <https://doi.org/10.1016/j.psychres.2012.04.035>
- Fernández de la Cruz, L., Barrow, F., Bolhuis, K., Krebs, G., Volz, C., Nakatani, E., Heyman, I., & Mataix-Cols, D. (2013). Sexual obsessions in pediatric obsessive-compulsive disorder: Clinical characteristics and treatment outcomes. *Depression and Anxiety*, 30(8), 732–740. <https://doi.org/10.1002/da.22097>
- Fernández de la Cruz, L., Jassi, A., Krebs, G., Clark, B., & Mataix-Cols, D. (2015). Phenomenology and treatment outcomes in children and adolescents from ethnic minorities with obsessive–compulsive disorder. *Journal of Obsessive-Compulsive and Related Disorders*, 4, 30–36. <https://doi.org/10.1016/j.jocrd.2014.11.003>
- Fischer, D. J., Himle, J. A., & Hanna, G. L. (1998). Group behavioral therapy for adolescents with obsessive-compulsive disorder: Preliminary outcomes. *Research on Social Work Practice*, 8(6), 629–636. <https://doi.org/10.1177/104973159800800601>

- Floean, I. S., Dobrean, A., Păsărelu, C. R., Georgescu, R. D., & Milea, I. (2020). The efficacy of internet-based parenting programs for children and adolescents with behavior problems: A meta-analysis of randomized clinical trials. *Clinical Child and Family Psychology Review*, 23(4), 510–528. <https://doi.org/10.1007/s10567-020-00326-0>
- Forehand, R., Jones, D. J., & Parent, J. (2013). Behavioral parenting interventions for child disruptive behaviors and anxiety: What's different and what's the same. *Clinical Psychology Review*, 33(1), 133–145. <https://doi.org/10.1016/j.cpr.2012.10.010>
- Forgatch, M. S., & DeGarmo, D. S. (2011). Sustaining fidelity following the nationwide PMTO™ implementation in Norway. *Prevention Science*, 12(3), 235–246. <https://doi.org/10.1007/s11121-011-0225-6>
- Forgatch, M. S., Patterson, G. R., & DeGarmo, D. S. (2005). Evaluating fidelity: Predictive validity for a measure of competent adherence to the oregon model of parent management training. *Behavior Therapy*, 36(1), 3–13. [https://doi.org/10.1016/S0005-7894\(05\)80049-8](https://doi.org/10.1016/S0005-7894(05)80049-8)
- Francazio, S. K., Flessner, C. A., Boisseau, C. L., Sibrava, N. J., Mancebo, M. C., Eisen, J. L., & Rasmussen, S. A. (2016). Parental accommodation predicts symptom severity at long-term follow-up in children with obsessive–compulsive disorder: A preliminary investigation. *Journal of Child and Family Studies*, 25(8), 2562–2570. <https://doi.org/10.1007/s10826-016-0408-7>
- Franklin, M. E., Kozak, M. J., Cashman, L. A., Coles, M. E., Rheingold, A. A., & Foa, E. B. (1998). Cognitive-behavioral treatment of pediatric obsessive-compulsive disorder: An open clinical trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37(4), 412–419. <https://doi.org/10.1097/00004583-199804000-00019>
- Freeman, J. B., Benito, K., Herren, J., Kemp, J., Sung, J., Georgiadis, C., Arora, A., Walther, M., & Garcia, A. (2018). Evidence base update of psychosocial treatments for pediatric obsessive-compulsive disorder: Evaluating, improving, and transporting what works. *Journal of Clinical Child & Adolescent Psychology*, 47(5), 669–698. <https://doi.org/10.1080/15374416.2018.1496443>
- Freeman, J. B., Garcia, A. M., Coyne, L., Ale, C., Przeworski, A., Himle, M., Compton, S., & Leonard, H. L. (2008). Early childhood OCD: Preliminary findings from a family-based cognitive-behavioral approach. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(5), 593–602. <https://doi.org/10.1097/CHI.0b013e31816765f9>
- Freeman, J. B., Garcia, A. M., Frank, H., Benito, K., Conelea, C., Walther, M., & Edmunds, J. (2014). Evidence base update for psychosocial treatments for pediatric obsessive-compulsive disorder. *Journal of Clinical Child and Adolescent Psychology*, 43(1), 7–26. <https://doi.org/10.1080/15374416.2013.804386>

- Freeman, J. B., Sapyta, J., Garcia, A., Compton, S., Khanna, M., Flessner, C., FitzGerald, D., Mauro, C., Dingfelder, R., Benito, K., Harrison, J., Curry, J., Foa, E., March, J., Moore, P., & Franklin, M. (2014). Family-based treatment of early childhood obsessive-compulsive disorder: The Pediatric Obsessive-Compulsive Disorder Treatment Study for Young Children (POTS Jr)—A randomized clinical trial. *JAMA Psychiatry*, *71*(6), 689–698. <https://doi.org/10.1001/jamapsychiatry.2014.170>
- Frick, P. J., Christian, R. E., & Wootton, J. M. (1999). Age trends in association between parenting practices and conduct problems. *Behavior Modification*, *23*(1), 106–128. <https://doi.org/10.1177/0145445599231005>
- Gallant, J., Storch, E. A., Merlo, L. J., Ricketts, E. D., Geffken, G. R., Goodman, W. K., & Murphy, T. K. (2008). Convergent and discriminant validity of the Children's Yale-Brown Obsessive Compulsive Scale-Symptom Checklist. *Journal of Anxiety Disorders*, *22*(8), 1369–1376. <https://doi.org/10.1016/j.janxdis.2008.01.017>
- Garcia, A. M., Freeman, J. B., Himle, M. B., Berman, N. C., Ogata, A. K., Ng, J., Choate-Summers, M. L., & Leonard, H. (2009). Phenomenology of early childhood onset obsessive compulsive disorder. *Journal of Psychopathology and Behavioral Assessment*, *31*(2), 104–111. <https://doi.org/10.1007/s10862-008-9094-0>
- Garcia, A. M., Sapyta, 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). *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(10), 1024–1033. <https://doi.org/10.1016/j.jaac.2010.06.013>
- Garson, G. D. (2015). *Missing values analysis and data imputation*. Statistical Associates Publishing. <http://www.statisticalassociates.com/missingvaluesanalysis.htm>
- Garvey, C., Julion, W., Fogg, L., Kratovil, A., & Gross, D. (2006). Measuring participation in a prevention trial with parents of young children. *Research in Nursing & Health*, *29*(3), 212–222. <https://doi.org/10.1002/nur.20127>
- Geller, D. A., Biederman, J., Griffin, S., & Jones, J. (1996). Comorbidity of juvenile obsessive-compulsive disorder with disruptive behavior disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, *35*(12), 1637–1646. <https://doi.org/10.1097/00004583-199612000-00016>
- Geller, D. A., Biederman, J., Stewart, S. E., Mullin, B., Farrell, C., Wagner, K. D., Emslie, G., & Carpenter, D. (2003). Impact of comorbidity on treatment response to paroxetine in pediatric obsessive-compulsive disorder: Is the use of exclusion criteria empirically supported in randomized clinical trials? *Journal of Child and Adolescent Psychopharmacology*, *13*(Suppl. 2), S19–S29. <https://doi.org/10.1089/104454603322126313>

- Geller, D. A., March, J. S., & AACAP Committee on Quality Issues. (2012). Practice parameter for the assessment and treatment of children and adolescents with obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51(1), 98–113. <https://doi.org/10.1016/j.jaac.2011.09.019>
- Gerlsma, C., Snijders, T. A. B., van Duijn, M. A. J., & Emmelkamp, P. M. G. (1997). Parenting and psychopathology: Differences in family members' perceptions of parental rearing styles. *Personality and Individual Differences*, 23(2), 271–282. [https://doi.org/10.1016/S0191-8869\(97\)00033-0](https://doi.org/10.1016/S0191-8869(97)00033-0)
- Gibaud-Wallston, J., & Wandersman, L. P. (1978, August). *Development and utility of the Parenting Sense of Competence Scale* [Paper]. American Psychological Association, Toronto, Canada.
- Gillihan, S. J., Williams, M. T., Malcoun, E., Yadin, E., & Foa, E. B. (2012). Common pitfalls in exposure and response prevention (EX/RP) for OCD. *Journal of Obsessive-Compulsive and Related Disorders*, 1(4), 251–257. <https://doi.org/10.1016/j.jocrd.2012.05.002>
- Ginsburg, G. S., Kingery, J. N., Drake, K. L., & Grados, M. A. (2008). Predictors of treatment response in pediatric obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(8), 868–878. <https://doi.org/10.1097/CHI.0b013e3181799ebd>
- Gomes, J. B., Van Noppen, B., Pato, M., Braga, D. T., Meyer, E., Bortolucello, C. F., & Cordoli, A. V. (2014). Patient and family factors associated with family accommodation in obsessive-compulsive disorder. *Psychiatry and Clinical Neurosciences*, 68(8), 621–630. <https://doi.org/10.1111/pcn.12172>
- Graf, F. A., Grumm, M., Hein, S., & Fingerle, M. (2014). Improving parental competencies: Subjectively perceived usefulness of a parent training matters. *Journal of Child and Family Studies*, 23(1), 20–28. <https://doi.org/10.1007/s10826-012-9682-1>
- Gross, D., Fogg, L., Garvey, C., & Julion, W. (2004). Behavior problems in young children: An analysis of cross-informant agreements and disagreements. *Research in Nursing & Health*, 27(6), 413–425. <https://doi.org/10.1002/nur.20040>
- Guajardo, N. R., Snyder, G., & Petersen, R. (2009). Relationships among parenting practices, parental stress, child behaviour, and children's social-cognitive development. *Infant and Child Development*, 18(1), 37–60. <https://doi.org/10.1002/icd.578>
- Hagen, K. A., Ogden, T., & Bjørnebekk, G. (2011). Treatment outcomes and mediators of parent management training: A one-year follow-up of children with conduct problems. *Journal of Clinical Child and Adolescent Psychology*, 40(2), 165–178. <https://doi.org/10.1080/15374416.2011.546050>

- Hanna, G. L., Fischer, D. J., Chadha, K. R., Himle, J. A., & Van Etten, M. (2005). Familial and sporadic subtypes of early-onset obsessive-compulsive disorder. *Biological Psychiatry*, *57*(8), 895–900. <https://doi.org/10.1016/j.biopsych.2004.12.022>
- Hanna, G. L., Yuwiler, A., & Coates, J. K. (1995). Whole blood serotonin and disruptive behaviors in juvenile obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *34*(1), 28–35. <https://doi.org/10.1097/00004583-199501000-00010>
- Harrell, F. E. (2015). Multivariable modeling strategies. In *Regression modeling strategies: With applications to linear models, logistic and ordinal regression, and survival analysis* (2nd ed., pp. 63–102). Springer International Publishing. [https://doi.org/10.1007/978-3-319-19425-7\\_4](https://doi.org/10.1007/978-3-319-19425-7_4)
- Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, *42*(2), 377–381. <https://doi.org/10.1016/j.jbi.2008.08.010>
- Hernán, M. Á., Brumback, B., & Robins, J. M. (2000). Marginal structural models to estimate the causal effect of Zidovudine on the survival of HIV-positive men. *Epidemiology*, *11*(5), 561–570. <https://doi.org/10.1097/00001648-200009000-00012>
- Hernán, M. Á., & Robins, J. M. (2006). Estimating causal effects from epidemiological data. *Journal of Epidemiology and Community Health*, *60*(7), 578–586. <https://doi.org/10.1136/jech.2004.029496>
- Hogue, A., Henderson, C. E., Dauber, S., Barajas, P. C., Fried, A., & Liddle, H. A. (2008). Treatment adherence, competence, and outcome in individual and family therapy for adolescent behavior problems. *Journal of Consulting and Clinical Psychology*, *76*(4), 544–555. <https://doi.org/10.1037/0022-006X.76.4.544>
- Huang, L.-C., Tsai, K.-J., Wang, H.-K., Sung, P.-S., Wu, M.-H., Hung, K.-W., & Lin, S.-H. (2014). Prevalence, incidence, and comorbidity of clinically diagnosed obsessive–compulsive disorder in Taiwan: A national population-based study. *Psychiatry Research*, *220*(1), 335–341. <https://doi.org/10.1016/j.psychres.2014.08.011>
- Hudson, J. L., Rapee, R. M., Lyneham, H. J., McLellan, L. F., Wuthrich, V. M., & Schniering, C. A. (2015). Comparing outcomes for children with different anxiety disorders following cognitive behavioural therapy. *Behaviour Research and Therapy*, *72*, 30–37. <https://doi.org/10.1016/j.brat.2015.06.007>

- Huey, S. J. Jr., Henggeler, S. W., Brondino, M. J., & Pickrel, S. G. (2000). Mechanisms of change in multisystemic therapy: Reducing delinquent behavior through therapist adherence and improved family and peer functioning. *Journal of Consulting and Clinical Psychology, 68*(3), 451–467. <https://doi.org/10.1037/0022-006X.68.3.451>
- Hukkelberg, S. S., & Ogden, T. (2013). Working alliance and treatment fidelity as predictors of externalizing problem behaviors in parent management training. *Journal of Consulting and Clinical Psychology, 81*(6), 1010–1020. <https://doi.org/10.1037/a0033825>
- Ivarsson, T., Melin, K., & Wallin, L. (2008). Categorical and dimensional aspects of comorbidity in obsessive-compulsive disorder (OCD). *European Child & Adolescent Psychiatry, 17*(1), 20–31. <https://doi.org/10.1007/s00787-007-0626-z>
- Ivarsson, T., Skarphedinsson, G., Kornør, H., Axelsdottir, B., Biedilæ, S., Heyman, I., Asbahr, F., Thomsen, P. H., Fineberg, N., & March, J. (2015). The place of and evidence for serotonin reuptake inhibitors (SRIs) for obsessive compulsive disorder (OCD) in children and adolescents: Views based on a systematic review and meta-analysis. *Psychiatry Research, 227*(1), 93–103. <https://doi.org/10.1016/j.psychres.2015.01.015>
- Johnco, C., McGuire, J. F., Roper, T., & Storch, E. A. (2020). A meta-analysis of dropout rates from exposure with response prevention and pharmacological treatment for youth with obsessive compulsive disorder. *Depression and Anxiety, 37*(5), 407–417. <https://doi.org/10.1002/da.22978>
- Johnston, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology, 18*(2), 167–175. [https://doi.org/10.1207/s15374424jccp1802\\_8](https://doi.org/10.1207/s15374424jccp1802_8)
- Kaminski, J. W., & Claussen, A. H. (2017). Evidence base update for psychosocial treatments for disruptive behaviors in children. *Journal of Clinical Child and Adolescent Psychology, 46*(4), 477–499. <https://doi.org/10.1080/15374416.2017.1310044>
- Kane, G. A., Wood, V. A., & Barlow, J. (2007). Parenting programmes: A systematic review and synthesis of qualitative research. *Child: Care, Health and Development, 33*(6), 784–793. <https://doi.org/10.1111/j.1365-2214.2007.00750.x>
- Kemp, J., Barker, D., Benito, K., Herren, J., & Freeman, J. B. (2020). Moderators of psychosocial treatment for pediatric obsessive-compulsive disorder: Summary and recommendations for future directions. *Journal of Clinical Child and Adolescent Psychology, 49*(1), 1–15. <https://doi.org/10.1080/15374416.2020.1790378>
- Krauthamer Ewing, E. S., Herres, J., Dilks, K. E., Rahim, F., & Trentacosta, C. J. (2019). Understanding of emotions and empathy: Predictors of positive parenting with preschoolers in economically stressed families. *Journal of Child and Family Studies, 28*(5), 1346–1358. <https://doi.org/10.1007/s10826-018-01303-6>

- Lack, C. W., Storch, E. A., Keeley, M. L., Geffken, G. R., Ricketts, E. D., Murphy, T. K., & Goodman, W. K. (2009). Quality of life in children and adolescents with obsessive-compulsive disorder: Base rates, parent-child agreement, and clinical correlates. *Social Psychiatry and Psychiatric Epidemiology*, *44*(11), 935–942. <https://doi.org/10.1007/s00127-009-0013-9>
- Langley, A. K., Lewin, A. B., Bergman, R. L., Lee, J. C., & Piacentini, J. (2010). Correlates of comorbid anxiety and externalizing disorders in childhood obsessive compulsive disorder. *European Child & Adolescent Psychiatry*, *19*(8), 637–645. <https://doi.org/10.1007/s00787-010-0101-0>
- Lavell, C. H., Farrell, L. J., Waters, A. M., & Cadman, J. (2016). Predictors of treatment response to group cognitive behavioural therapy for pediatric obsessive-compulsive disorder. *Psychiatry Research*, *245*, 186–193. <https://doi.org/10.1016/j.psychres.2016.08.033>
- Lebowitz, E. R., Marin, C., Martino, A., Shimshoni, Y., & Silverman, W. K. (2020). Parent-based treatment as efficacious as cognitive-behavioral therapy for childhood anxiety: A randomized noninferiority study of supportive parenting for anxious childhood emotions. *Journal of the American Academy of Child & Adolescent Psychiatry*, *59*(3), 362–372. <https://doi.org/10.1016/j.jaac.2019.02.014>
- Lebowitz, E. R., Omer, H., & Leckman, J. F. (2011). Coercive and disruptive behaviors in pediatric obsessive-compulsive disorder. *Depression and Anxiety*, *28*(10), 899–905. <https://doi.org/10.1002/da.20858>
- Lebowitz, E. R., Panza, K. E., Su, J., & Bloch, M. H. (2012). Family accommodation in obsessive-compulsive disorder. *Expert Review of Neurotherapeutics*, *12*(2), 229–238. <https://doi.org/10.1586/ern.11.200>
- Lebowitz, E. R., Vitulano, L. A., Mataix-Cols, D., & Leckman, J. F. (2011). When OCD takes over...the family! Coercive and disruptive behaviours in paediatric obsessive compulsive disorder. *Journal of Child Psychology and Psychiatry*, *52*(12), 1249–1250. <https://doi.org/10.1111/j.1469-7610.2011.02480.x>
- Lebowitz, E. R., Vitulano, L. A., & Omer, H. (2011). Coercive and disruptive behaviors in pediatric obsessive compulsive disorder: A qualitative analysis. *Psychiatry: Interpersonal and Biological Processes*, *74*(4), 362–371. <https://doi.org/10.1521/psyc.2011.74.4.362>
- Lehmkuhl, H. D., Storch, E. A., Rahman, O., Freeman, J. B., Geffken, G. R., & Murphy, T. K. (2009). Just say no: Sequential parent management training and cognitive-behavioral therapy for a child with comorbid disruptive behavior and obsessive compulsive disorder. *Clinical Case Studies*, *8*(1), 48–58. <https://doi.org/10.1177/1534650108326786>

- Lewin, A. B., Bergman, R. L., Peris, T. S., Chang, S., McCracken, J. T., & Piacentini, J. (2010). Correlates of insight among youth with obsessive-compulsive disorder. *Journal of Child Psychology and Psychiatry*, *51*(5), 603–611. <https://doi.org/10.1111/j.1469-7610.2009.02181.x>
- Lewin, A. B., Park, J. M., Jones, A. M., Crawford, E. A., De Nadai, A. S., Menzel, J., Arnold, E. B., Murphy, T. K., & Storch, E. A. (2014). Family-based exposure and response prevention therapy for preschool-aged children with obsessive-compulsive disorder: A pilot randomized controlled trial. *Behaviour Research and Therapy*, *56*, 30–38. <https://doi.org/10.1016/j.brat.2014.02.001>
- Lewin, A. B., Peris, T. S., Lindsey Bergman, R., McCracken, J. T., & Piacentini, J. (2011). The role of treatment expectancy in youth receiving exposure-based CBT for obsessive compulsive disorder. *Behaviour Research and Therapy*, *49*(9), 536–543. <https://doi.org/10.1016/j.brat.2011.06.001>
- Lewin, A. B., & Piacentini, J. (2010). Evidence-based assessment of child obsessive compulsive disorder: Recommendations for clinical practice and treatment research. *Child & Youth Care Forum*, *39*(2), 73–89. <https://doi.org/10.1007/s10566-009-9092-8>
- Lewin, A. B., Piacentini, J., De Nadai, A. S., Jones, A. M., Peris, T. S., Geffken, G. R., Geller, D. A., Nadeau, J. M., Murphy, T. K., & Storch, E. A. (2014). Defining clinical severity in pediatric obsessive-compulsive disorder. *Psychological Assessment*, *26*(2), 679–684. <https://doi.org/10.1037/a0035174>
- Lewin, A. B., Storch, E. A., Merlo, L. J., Adkins, J. W., Murphy, T., & Geffken, G. A. (2005). Intensive cognitive behavioral therapy for pediatric obsessive compulsive disorder: A treatment protocol for mental health providers. *Psychological Services*, *2*(2), 91–104. <https://doi.org/10.1037/1541-1559.2.2.91>
- Lindhiem, O., Higa, J., Trentacosta, C. J., Herschell, A. D., & Kolko, D. J. (2014). Skill acquisition and utilization during evidence-based psychosocial treatments for childhood disruptive behavior problems: A review and meta-analysis. *Clinical Child and Family Psychology Review*, *17*(1), 41–66. <https://doi.org/10.1007/s10567-013-0136-0>
- Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198–1202. <https://doi.org/10.1080/01621459.1988.10478722>
- Luyckx, K., Tildesley, E. A., Soenens, B., Andrews, J. A., Hampson, S. E., Peterson, M., & Duriez, B. (2011). Parenting and trajectories of children's maladaptive behaviors: A 12-year prospective community study. *Journal of Clinical Child and Adolescent Psychology*, *40*(3), 468–478. <https://doi.org/10.1080/15374416.2011.563470>

- Lyneham, H. J., & Rapee, R. M. (2006). Evaluation of therapist-supported parent-implemented CBT for anxiety disorders in rural children. *Behaviour Research and Therapy*, *44*(9), 1287–1300. <https://doi.org/10.1016/j.brat.2005.09.009>
- March, J. S., Mulle, K., & Herbel, B. (1994). Behavioral psychotherapy for children and adolescents with obsessive-compulsive disorder: An open trial of a new protocol-driven treatment package. *Journal of the American Academy of Child & Adolescent Psychiatry*, *33*(3), 333–341. <https://doi.org/10.1097/00004583-199403000-00006>
- Martin, J. L., & Thienemann, M. (2005). Group cognitive-behavior therapy with family involvement for middle-school-age children with obsessive-compulsive disorder: A pilot study. *Child Psychiatry and Human Development*, *36*(1), 113–127. <https://doi.org/10.1007/s10578-005-3496-y>
- Maurizi, L. K., Gershoff, E. T., & Aber, J. L. (2012). Item-level discordance in parent and adolescent reports of parenting behavior and its implications for adolescents' mental health and relationships with their parents. *Journal of Youth and Adolescence*, *41*(8), 1035–1052. <https://doi.org/10.1007/s10964-011-9741-8>
- McGrath, C. A., & Abbott, M. J. (2019). Family-based psychological treatment for obsessive compulsive disorder in children and adolescents: A meta-analysis and systematic review. *Clinical Child and Family Psychology Review*, *22*(4), 478–501. <https://doi.org/10.1007/s10567-019-00296-y>
- McGuire, J. F., Piacentini, J., Lewin, A. B., Brennan, E. A., Murphy, T. K., & Storch, E. A. (2015). A meta-analysis of cognitive behavior therapy and medication for child obsessive-compulsive disorder: Moderators of treatment efficacy, response, and remission. *Depression and Anxiety*, *32*(8), 580–593. <https://doi.org/10.1002/da.22389>
- McGuire, J. F., Small, B. J., Lewin, A. B., Murphy, T. K., De Nadai, A. S., Phares, V., Geffken, G., & Storch, E. A. (2013). Dysregulation in pediatric obsessive compulsive disorder. *Psychiatry Research*, *209*(3), 589–595. <https://doi.org/10.1016/j.psychres.2013.04.003>
- McKenney, K., Simpson, A., & Stewart, S. E. (2020). *OCD in children and adolescents: The "OCD is Not the Boss of Me" manual*. The Guilford Press.
- McMahon, R. J., & Forehand, R. L. (2003). *Helping the noncompliant child: Family-based treatment for oppositional behavior* (2nd ed.). The Guilford Press.
- McMahon, R. J., & Frick, P. J. (2019). Conduct and oppositional disorders. In M. J. Prinstein, E. A. Youngstrom, E. J. Mash, & R. A. Barkley (Eds.), *Treatment of disorders in childhood and adolescence* (4th ed., pp. 102–172). The Guilford Press.

- McMahon, R. J., & Pasalich, D. S. (2018). Parenting and family intervention in treatment. In M. A. Sanders & A. Morawska (Eds.), *Handbook of parenting and child development across the lifespan* (pp. 745–773). Springer, Cham. [https://doi.org/10.1007/978-3-319-94598-9\\_33](https://doi.org/10.1007/978-3-319-94598-9_33)
- Mendez, J. L., Carpenter, J. L., LaForett, D. R., & Cohen, J. S. (2009). Parental engagement and barriers to participation in a community-based preventive intervention. *American Journal of Community Psychology, 44*(1–2), 1–14. <https://doi.org/10.1007/s10464-009-9252-x>
- 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. *Journal of Consulting and Clinical Psychology, 77*(2), 355–360. <https://doi.org/10.1037/a0012652>
- Meyer, J. M., Clapp, J. D., Whiteside, S. P. H., Dammann, J., Kriegshauser, K. D., Hale, L. R., Jacobi, D. M., Riemann, B. C., & Deacon, B. J. (2017). Predictive relationship between parental beliefs and accommodation of pediatric anxiety. *Behavior Therapy, 49*(4), 580–593. <https://doi.org/10.1016/j.beth.2017.11.004>
- Michelson, D., Davenport, C., Dretzke, J., Barlow, J., & Day, C. (2013). Do evidence-based interventions work when tested in the “real world?” A systematic review and meta-analysis of parent management training for the treatment of child disruptive behavior. *Clinical Child and Family Psychology Review, 16*(1), 18–34. <https://doi.org/10.1007/s10567-013-0128-0>
- Murray, C. J. L., & Lopez, A. D. (Eds.). (1996). *The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020* (Vol. 1). Harvard University Press. <https://apps.who.int/iris/handle/10665/41864>
- Nair, A., Turner, C., Heyman, I., Mataix-Cols, D., Lovell, K., Krebs, G., Lang, K., Byford, S., & O’Kearney, R. (2019). Moderators and predictors of outcomes in telephone delivered compared to face-to-face cognitive behaviour therapy for paediatric obsessive–compulsive disorder: Preliminary evidence from a non-inferiority RCT. *Cognitive Behaviour Therapy, 48*(5), 353–368. <https://doi.org/10.1080/16506073.2018.1513555>
- Nakatani, E., Krebs, G., Micali, N., Turner, C. M., Heyman, I., & Mataix-Cols, D. (2011). Children with very early onset obsessive-compulsive disorder: Clinical features and treatment outcome. *Journal of Child Psychology and Psychiatry, 52*(12), 1261–1268. <https://doi.org/10.1111/j.1469-7610.2011.02434.x>
- Nix, R. L., Bierman, K. L., & McMahon, R. J. (2009). How attendance and quality of participation affect treatment response to parent management training. *Journal of Consulting and Clinical Psychology, 77*(3), 429–438. <https://doi.org/10.1037/a0015028>

- Nock, M. K., Ferriter, C., & Holmberg, E. (2007). Parent beliefs about treatment credibility and effectiveness: Assessment and relation to subsequent treatment participation. *Journal of Child and Family Studies*, *16*(1), 27–38. <https://doi.org/10.1007/s10826-006-9064-7>
- Nock, M. K., & Kazdin, A. E. (2005). Randomized controlled trial of a brief intervention for increasing participation in parent management training. *Journal of Consulting and Clinical Psychology*, *73*(5), 872–879. <https://doi.org/10.1037/0022-006X.73.5.872>
- O’Connell, N. S., Dai, L., Jiang, Y., Speiser, J. L., Ward, R., Wei, W., Carroll, R., & Gebregziabher, M. (2017). Methods for analysis of pre-post data in clinical research: A comparison of five common methods. *Journal of Biometrics & Biostatistics*, *8*(1), 1–8. <https://doi.org/10.4172/2155-6180.1000334>
- O’Kearney, R., Anstey, K., von Sanden, C., & Hunt, A. (2006). Behavioural and cognitive behavioural therapy for obsessive compulsive disorder in children and adolescents. *Cochrane Database of Systematic Reviews*, (4), CD004856. <https://doi.org/10.1002/14651858.CD004856.pub2>
- Öst, L.-G., Riise, E. N., Wergeland, G. J., Hansen, B., & Kvale, G. (2016). Cognitive behavioral and pharmacological treatments of OCD in children: A systematic review and meta-analysis. *Journal of Anxiety Disorders*, *43*, 58–69. <https://doi.org/10.1016/j.janxdis.2016.08.003>
- Owens, E. B., & Piacentini, J. (1998). Case study: Behavioral treatment of obsessive-compulsive disorder in a boy with comorbid disruptive behavior problems. *Journal of the American Academy of Child & Adolescent Psychiatry*, *37*(4), 443–446. <https://doi.org/10.1097/00004583-199804000-00023>
- Patterson, G. R. (1982). *Coercive family process*. Castalia Publishing Company.
- Paulussen-Hoogeboom, M. C., Stams, G. J. J. M., Hermanns, J. M. A., Peetsma, T. T. D., & van den Wittenboer, G. L. H. (2008). Parenting style as a mediator between children’s negative emotionality and problematic behavior in early childhood. *The Journal of Genetic Psychology: Research and Theory on Human Development*, *169*(3), 209–226. <https://doi.org/10.3200/GNTP.169.3.09-226>
- Pediatric OCD Treatment Study Team. (2004). Cognitive-behavior therapy, sertraline, and their combination for children and adolescents with obsessive-compulsive disorder: The Pediatric OCD Treatment Study (POTS) randomized controlled trial. *JAMA: Journal of the American Medical Association*, *292*(16), 1969–1976. <https://doi.org/10.1001/jama.292.16.1969>
- Peris, T. S., Benazon, N., Langley, A., Roblek, T., & Piacentini, J. (2008). Parental attitudes, beliefs, and responses to childhood obsessive compulsive disorder: The Parental Attitudes and Behaviors Scale. *Child & Family Behavior Therapy*, *30*(3), 199–214. <https://doi.org/10.1080/07317100802275447>

- Peris, T. S., Bergman, R. L., Langley, A., Chang, S., McCracken, J. T., & Piacentini, J. (2008). Correlates of accommodation of pediatric obsessive-compulsive disorder: Parent, child, and family characteristics. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*(10), 1173–1181. <https://doi.org/10.1097/CHI.0b013e3181825a91>
- Peris, T. S., & Piacentini, J. (2013). Optimizing treatment for complex cases of childhood obsessive compulsive disorder: A preliminary trial. *Journal of Clinical Child and Adolescent Psychology, 42*(1), 1–8. <https://doi.org/10.1080/15374416.2012.673162>
- Peris, T. S., & Piacentini, J. (2014). Addressing barriers to change in the treatment of childhood obsessive compulsive disorder. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 32*(1), 31–43. <https://doi.org/10.1007/s10942-014-0183-6>
- Peris, T. S., Rozenman, M. S., Sugar, C. A., McCracken, J. T., & Piacentini, J. (2017). Targeted family intervention for complex cases of pediatric obsessive-compulsive disorder: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(12), 1034–1042. <https://doi.org/10.1016/j.jaac.2017.10.008>
- Peris, T. S., Yadegar, M., Asarnow, J. R., & Piacentini, J. (2012). Pediatric obsessive compulsive disorder: Family climate as a predictor of treatment outcome. *Journal of Obsessive-Compulsive and Related Disorders, 1*(4), 267–273. <https://doi.org/10.1016/j.jocrd.2012.07.003>
- Piacentini, J., Bergman, R. L., Chang, S., Langley, A., Peris, T., Wood, J. J., & McCracken, J. (2011). Controlled comparison of family cognitive behavioral therapy and psychoeducation/relaxation training for child obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 50*(11), 1149–1161. <https://doi.org/10.1016/j.jaac.2011.08.003>
- Piacentini, J., Bergman, R. L., Jacobs, C., McCracken, J. T., & Kretchman, J. (2002). Open trial of cognitive behavior therapy for childhood obsessive-compulsive disorder. *Journal of Anxiety Disorders, 16*(2), 207–219. [https://doi.org/10.1016/S0887-6185\(02\)00096-8](https://doi.org/10.1016/S0887-6185(02)00096-8)
- Piacentini, J., Bergman, R. L., Keller, M., & McCracken, J. (2003). Functional impairment in children and adolescents with obsessive-compulsive disorder. *Journal of Child and Adolescent Psychopharmacology, 13*(Suppl. 2), S61–S69. <https://doi.org/10.1089/104454603322126359>
- Piacentini, J., Peris, T. S., Bergman, R. L., Chang, S., & Jaffer, M. (2007). Functional impairment in childhood OCD: Development and psychometrics properties of the Child Obsessive-Compulsive Impact Scale–Revised (COIS–R). *Journal of Clinical Child and Adolescent Psychology, 36*(4), 645–653. <https://doi.org/10.1080/15374410701662790>

- Pinquart, M. (2017). Associations of parenting dimensions and styles with internalizing symptoms in children and adolescents: A meta-analysis. *Marriage & Family Review, 53*(7), 613–640. <https://doi.org/10.1080/01494929.2016.1247761>
- Pinto, A., Mancebo, M. C., Eisen, J. L., Pagano, M. E., & Rasmussen, S. A. (2006). The Brown Longitudinal Obsessive Compulsive Study: Clinical features and symptoms of the sample at intake. *The Journal of Clinical Psychiatry, 67*(5), 703–711. <https://doi.org/10.4088/JCP.v67n0503>
- Rapee, R. M., Abbott, M. J., & Lyneham, H. J. (2006). Bibliotherapy for children with anxiety disorders using written materials for parents: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(3), 436–444. <https://doi.org/10.1037/0022-006X.74.3.436>
- Rapoport, J. L., Inoff-Germain, G., Weissman, M. M., Greenwald, S., Narrow, W. E., Jensen, P. S., Lahey, B. B., & Canino, G. (2000). Childhood obsessive-compulsive disorder in the NIMH MECA Study: Parent versus child identification of cases. *Journal of Anxiety Disorders, 14*(6), 535–548. [https://doi.org/10.1016/S0887-6185\(00\)00048-7](https://doi.org/10.1016/S0887-6185(00)00048-7)
- Reddy, Y. C. J., Reddy, P. S., Srinath, S., Khanna, S., Sheshadri, S. P., & Girimaji, S. C. (2000). Comorbidity in juvenile obsessive-compulsive disorder: A report from India. *The Canadian Journal of Psychiatry / La Revue Canadienne de Psychiatrie, 45*(3), 274–278. <https://doi.org/10.1177/070674370004500307>
- Reynolds, S. A., Clark, S., Smith, H., Langdon, P. E., Payne, R., Bowers, G., Norton, E., & McIlwham, H. (2013). Randomized controlled trial of parent-enhanced CBT compared with individual CBT for obsessive-compulsive disorder in young people. *Journal of Consulting and Clinical Psychology, 81*(6), 1021–1026. <https://doi.org/10.1037/a0034429>
- Riddle, M. A., Hardin, M. T., King, R., Scahill, L., & Woolston, J. L. (1990). Fluoxetine treatment of children and adolescents with Tourette's and obsessive compulsive disorders: Preliminary clinical experience. *Journal of the American Academy of Child & Adolescent Psychiatry, 29*(1), 45–48. <https://doi.org/10.1097/00004583-199001000-00008>
- Rinaldi, C. M., & Howe, N. (2012). Mothers' and fathers' parenting styles and associations with toddlers' externalizing, internalizing, and adaptive behaviors. *Early Childhood Research Quarterly, 27*(2), 266–273. <https://doi.org/10.1016/j.ecresq.2011.08.001>
- Robins, J. M., Hernán, M. Á., & Brumback, B. (2000). Marginal Structural Models and Causal Inference in Epidemiology. *Epidemiology, 11*(5), 550–560. <https://doi.org/10.1097/00001648-200009000-00011>

- Rosa-Alcázar, A. I., Sánchez-Meca, J., Rosa-Alcázar, Á., Iniesta-Sepúlveda, M., Olivares-Rodríguez, J., & Parada-Navas, J. L. (2015). Psychological treatment of obsessive-compulsive disorder in children and adolescents: A meta-analysis. *The Spanish Journal of Psychology*, *18*, e20. <https://doi.org/10.1017/sjp.2015.22>
- Rose, J., Roman, N., Mwaba, K., & Ismail, K. (2018). The relationship between parenting and internalizing behaviours of children: A systematic review. *Early Child Development and Care*, *188*(10), 1468–1486. <https://doi.org/10.1080/03004430.2016.1269762>
- Rudy, B. M., Lewin, A. B., Geffken, G. R., Murphy, T. K., & Storch, E. A. (2014). Predictors of treatment response to intensive cognitive-behavioral therapy for pediatric obsessive-compulsive disorder. *Psychiatry Research*, *220*(1), 433–440. <https://doi.org/10.1016/j.psychres.2014.08.002>
- Rufer, M., Grothusen, A., Maß, R., Peter, H., & Hand, I. (2005). Temporal stability of symptom dimensions in adult patients with obsessive-compulsive disorder. *Journal of Affective Disorders*, *88*(1), 99–102. <https://doi.org/10.1016/j.jad.2005.06.003>
- Scahill, L., Riddle, M. A., McSwiggin-Hardin, M., Ort, S. I., King, R. A., Goodman, W. K., Cicchetti, D., & Leckman, J. F. (1997). Children's Yale-Brown Obsessive Compulsive Scale: Reliability and validity. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*(6), 844–852. <https://doi.org/10.1097/00004583-199706000-00023>
- Scahill, L., Vitulano, L. A., Brenner, E. M., Lynch, K. A., & King, R. A. (1996). Behavioral therapy in children and adolescents with obsessive-compulsive disorder: A pilot study. *Journal of Child and Adolescent Psychopharmacology*, *6*(3), 191–202. <https://doi.org/10.1089/cap.1996.6.191>
- Scavenius, C., Chacko, A., Lindberg, M. R., Granski, M., Vardanian, M. M., Pontoppidan, M., Hansen, H., & Eiberg, M. (2020). Parent management training Oregon model and family-based services as usual for behavioral problems in youth: A national randomized controlled trial in Denmark. *Child Psychiatry and Human Development*, *51*(5), 839–852. <https://doi.org/10.1007/s10578-020-01028-y>
- Schuberth, D. A., Selles, R. R., & Stewart, S. E. (2018). Coercive and disruptive behaviors mediate group cognitive-behavioral therapy response in pediatric obsessive-compulsive disorder. *Comprehensive Psychiatry*, *86*, 74–81. <https://doi.org/10.1016/j.comppsy.2018.07.012>
- Selles, R. R., Belschner, L., Negreiros, J., Lin, S. Y., Schuberth, D. A., McKenney, K. M., Gregorowski, N., Simpson, A., Bliss, A., & Stewart, S. E. (2017). Group family-based cognitive behavioral therapy for pediatric obsessive compulsive disorder: Global outcomes and predictors of improvement. *Psychiatry Research*, *260*, 116–122. <https://doi.org/10.1016/j.psychres.2017.11.041>

- Selles, R. R., Franklin, M., Sapyta, J., Compton, S. N., Tommet, D., Jones, R. N., Garcia, A., & Freeman, J. (2018). Children's and parents' ability to tolerate child distress: Impact on cognitive behavioral therapy for pediatric obsessive compulsive disorder. *Child Psychiatry and Human Development*, *49*(2), 308–316. <https://doi.org/10.1007/s10578-017-0748-6>
- Selles, R. R., Højgaard, D. R. M. A., Ivarsson, T., Thomsen, P. H., McBride, N. M., Storch, E. A., Geller, D., Wilhelm, S., Farrell, L. J., Waters, A. M., Mathieu, S., & Stewart, S. E. (2020). Avoidance, insight, impairment recognition concordance, and cognitive-behavioral therapy outcomes in pediatric obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *59*(5), 650–659. <https://doi.org/10.1016/j.jaac.2019.05.030>
- Selles, R. R., Storch, E. A., & Lewin, A. B. (2014). Variations in symptom prevalence and clinical correlates in younger versus older youth with obsessive-compulsive disorder. *Child Psychiatry and Human Development*, *45*(6), 666–674. <https://doi.org/10.1007/s10578-014-0435-9>
- Sequeira, A., Alozie, A., Fasteau, M., Lopez, A. K., Sy, J., Turner, K. A., Werner, C., McIngvale, E., & Björgvinsson, T. (2020). Transitioning to virtual programming amidst covid-19 outbreak. *Counselling Psychology Quarterly*. Advance online publication. <https://doi.org/10.1080/09515070.2020.1777940>
- Shelton, K. K., Frick, P. J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology*, *25*(3), 317–329. [https://doi.org/10.1207/s15374424jccp2503\\_8](https://doi.org/10.1207/s15374424jccp2503_8)
- Silverman, W. K., & Albano, A. M. (1996). *The Anxiety Disorders Interview Schedule for DSM-IV—Child and parent versions*. Psychological Corporation.
- Silverman, W. K., Saavedra, L. M., & Pina, A. A. (2001). Test-retest reliability of anxiety symptoms and diagnoses with anxiety disorders interview schedule for DSM-IV: Child and parent versions. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*(8), 937–944. <https://doi.org/10.1097/00004583-200108000-00016>
- Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion*, *29*(2), 83–102. <https://doi.org/10.1007/s11031-005-7955-3>
- Spoth, R., Redmond, C., Haggerty, K., & Ward, T. (1995). A controlled parenting skills outcome study examining individual difference and attendance effects. *Journal of Marriage and the Family*, *57*(2), 449–464. <https://doi.org/10.2307/353698>
- Stewart, L. S., & Carlson, J. S. (2010). Investigating parental acceptability of the incredible years self-administered parent training program for children presenting externalizing behavior problems. *Journal of Applied School Psychology*, *26*(2), 162–175. <https://doi.org/10.1080/15377901003709369>

- Stewart, S. E., Hu, Y.-P., Hezel, D. M., Proujansky, R., Lamstein, A., Walsh, C., Ben-Joseph, E. P., Girona, C., Jenike, M., Geller, D. A., & Pauls, D. L. (2011). Development and psychometric properties of the OCD Family Functioning (OFF) Scale. *Journal of Family Psychology, 25*(3), 434–443. <https://doi.org/10.1037/a0023735>
- Stewart, S. E., Hu, Y.-P., Leung, A., Chan, E., Hezel, D. M., Lin, S. Y., Belschner, L., Walsh, C., Geller, D. A., & Pauls, D. L. (2017). A multisite study of family functioning impairment in pediatric obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(3), 241–249. <https://doi.org/10.1016/j.jaac.2016.12.012>
- Storch, E. A., Björgvinsson, T., Riemann, B., Lewin, A. B., Morales, M. J., & Murphy, T. K. (2010). Factors associated with poor response in cognitive-behavioral therapy for pediatric obsessive-compulsive disorder. *Bulletin of the Menninger Clinic, 74*(2), 167–185. <https://doi.org/10.1521/bumc.2010.74.2.167>
- Storch, E. A., Caporino, N. E., Morgan, J. R., Lewin, A. B., Rojas, A., Brauer, L., Larson, M. J., & Murphy, T. K. (2011). Preliminary investigation of web-camera delivered cognitive-behavioral therapy for youth with obsessive-compulsive disorder. *Psychiatry Research, 189*(3), 407–412. <https://doi.org/10.1016/j.psychres.2011.05.047>
- Storch, E. A., Geffken, G. R., Merlo, L. J., Jacob, M. L., Murphy, T. K., Goodman, W. K., Larson, M. J., Fernandez, M., & Grabill, K. (2007). Family accommodation in pediatric obsessive-compulsive disorder. *Journal of Clinical Child and Adolescent Psychology, 36*(2), 207–216. <https://doi.org/10.1080/15374410701277929>
- Storch, E. A., Geffken, G. R., Merlo, L. J., Mann, G., Duke, D., Munson, M., Adkins, J., Grabill, K. M., Murphy, T. K., & Goodman, W. K. (2007). Family-based cognitive-behavioral therapy for pediatric obsessive-compulsive disorder: Comparison of intensive and weekly approaches. *Journal of the American Academy of Child & Adolescent Psychiatry, 46*(4), 469–478. <https://doi.org/10.1097/chi.0b013e31803062e7>
- Storch, E. A., Jones, A. M., Lack, C. W., Ale, C. M., Sulkowski, M. L., Lewin, A. B., De Nadai, A. S., & Murphy, T. K. (2012). Rage attacks in pediatric obsessive-compulsive disorder: Phenomenology and clinical correlates. *Journal of the American Academy of Child & Adolescent Psychiatry, 51*(6), 582–592. <https://doi.org/10.1016/j.jaac.2012.02.016>
- Storch, E. A., Lehmkuhl, H. D., Ricketts, E., Geffken, G. R., Marien, W., & Murphy, T. K. (2010). An open trial of intensive family based cognitive-behavioral therapy in youth with obsessive-compulsive disorder who are medication partial responders or nonresponders. *Journal of Clinical Child & Adolescent Psychology, 39*(2), 260–268. <https://doi.org/10.1080/15374410903532676>

- Storch, E. A., Lehmkuhl, H., Pence, S. L. Jr., Geffken, G. R., Ricketts, E., Storch, J. F., & Murphy, T. K. (2009). Parental experiences of having a child with obsessive-compulsive disorder: Associations with clinical characteristics and caregiver adjustment. *Journal of Child and Family Studies*, *18*(3), 249–258. <https://doi.org/10.1007/s10826-008-9225-y>
- Storch, E. A., Lewin, A. B., Geffken, G. R., Morgan, J. R., & Murphy, T. K. (2010). The role of comorbid disruptive behavior in the clinical expression of pediatric obsessive-compulsive disorder. *Behaviour Research and Therapy*, *48*(12), 1204–1210. <https://doi.org/10.1016/j.brat.2010.09.004>
- 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. *Journal of the American Academy of Child & Adolescent Psychiatry*, *47*(5), 583–592. <https://doi.org/10.1097/CHI.0b013e31816774b1>
- Storch, E. A., Merlo, L. J., Larson, M. J., Marien, W. E., Geffken, G. R., Jacob, M. L., Goodman, W. K., & Murphy, T. K. (2008). Clinical features associated with treatment-resistant pediatric obsessive-compulsive disorder. *Comprehensive Psychiatry*, *49*(1), 35–42. <https://doi.org/10.1016/j.comppsy.2007.06.009>
- Storch, E. A., Murphy, T. K., Adkins, J. W., Lewin, A. B., Geffken, G. R., Johns, N. B., Jann, K. E., & Goodman, W. K. (2006). The Children's Yale-Brown Obsessive-Compulsive scale: Psychometric properties of child- and parent-report formats. *Journal of Anxiety Disorders*, *20*(8), 1055–1070. <https://doi.org/10.1016/j.janxdis.2006.01.006>
- Storch, E. A., Peris, T. S., De Nadai, A., Piacentini, J., Bloch, M., Cervin, M., McGuire, J., Farrell, L. J., McCracken, J. T., McKay, D., Riemann, B. C., Wagner, A. P., Franklin, M., Schneider, S. C., Walkup, J. T., Williams, L., Abramowitz, J. S., Stewart, S. E., Fitzgerald, K. D., & Goodman, W. K. (2020). Little doubt that CBT works for pediatric OCD. *Journal of the American Academy of Child & Adolescent Psychiatry*, *59*(7), 785–787. <https://doi.org/10.1016/j.jaac.2020.01.026>
- Storch, E. A., Rudy, B. M., Wu, M. S., Lewin, A. B., & Murphy, T. K. (2015). Moderators of impairment agreement among parent–child dyads in pediatric obsessive-compulsive disorder. *Journal of Psychopathology and Behavioral Assessment*, *37*(2), 318–328. <https://doi.org/10.1007/s10862-014-9456-8>
- Storch, E. A., Wilhelm, S., Sprich, S., Henin, A., Micco, J., Small, B. J., McGuire, J., Mutch, J., Lewin, A. B., Murphy, T. K., & Geller, D. A. (2016). Efficacy of augmentation of cognitive behavior therapy with weight-adjusted D-cycloserine vs placebo in pediatric obsessive-compulsive disorder: A randomized clinical trial. *JAMA Psychiatry*, *73*(8), 779–788. <https://doi.org/10.1001/jamapsychiatry.2016.1128>

- Strauss, C., Hale, L., & Stobie, B. (2015). A meta-analytic review of the relationship between family accommodation and OCD symptom severity. *Journal of Anxiety Disorders*, 33, 95–102. <https://doi.org/10.1016/j.janxdis.2015.05.006>
- Sukhodolsky, D. G., Gorman, B. S., Scahill, L., Findley, D., & McGuire, J. (2013). Exposure and response prevention with or without parent management training for children with obsessive-compulsive disorder complicated by disruptive behavior: A multiple-baseline across-responses design study. *Journal of Anxiety Disorders*, 27(3), 298–305. <https://doi.org/10.1016/j.janxdis.2013.01.005>
- Swedo, S. E., Rapoport, J. L., Leonard, H. L., Lenane, M., & Cheslow, D. (1989). Obsessive-compulsive disorder in children and adolescents: Clinical phenomenology of 70 consecutive cases. *Archives of General Psychiatry*, 46(4), 335–341. <https://doi.org/10.1001/archpsyc.1989.01810040041007>
- Taylor, B. P., Weiss, M., Ferretti, C. J., Berlin, G., & Hollander, E. (2014). Disruptive, impulse-control, and conduct disorders. In R. E. Hales, S. C. Yudofsky, & L. W. Roberts (Eds.), *The American Psychiatric Publishing textbook of psychiatry*. (pp. 703–734). American Psychiatric Publishing, Inc.
- Thoemmes, F., & Ong, A. D. (2016). A primer on inverse probability of treatment weighting and marginal structural models. *Emerging Adulthood*, 4(1), 40–59. <https://doi.org/10.1177/2167696815621645>
- Torp, N. C., Dahl, K., Skarphedinsson, G., Compton, S., Thomsen, P. H., Weidle, B., Hybel, K., Valderhaug, R., Melin, K., Nissen, J. B., & Ivarsson, T. (2015). Predictors associated with improved cognitive-behavioral therapy outcome in pediatric obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 54(3), 200–207. <https://doi.org/10.1016/j.jaac.2014.12.007>
- Turner, C. M., Heyman, I., Futh, A., & Lovell, K. (2009). A pilot study of telephone cognitive-behavioural therapy for obsessive-compulsive disorder in young people. *Behavioural and Cognitive Psychotherapy*, 37(4), 469–474. Cambridge Core. <https://doi.org/10.1017/S1352465809990178>
- Turner, C. M., Mataix-Cols, D., Lovell, K., Krebs, G., Lang, K., Byford, S., & Heyman, I. (2014). Telephone cognitive-behavioral therapy for adolescents with obsessive-compulsive disorder: A randomized controlled non-inferiority trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53(12), 1298-1307.e2. <https://doi.org/10.1016/j.jaac.2014.09.012>
- Turner, C. M., O’Gorman, B., Nair, A., & O’Kearney, R. (2018). Moderators and predictors of response to cognitive behaviour therapy for pediatric obsessive-compulsive disorder: A systematic review. *Psychiatry Research*, 261, 50–60. <https://doi.org/10.1016/j.psychres.2017.12.034>

- Uhre, C. F., Uhre, V. F., Lønfeldt, N. N., Pretzmann, L., Vangkilde, S., Plessen, K. J., Gluud, C., Jakobsen, J. C., & Pagsberg, A. K. (2020). Systematic review and meta-analysis: Cognitive-behavioral therapy for obsessive-compulsive disorder in children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 59*(1), 64–77. <https://doi.org/10.1016/j.jaac.2019.08.480>
- van Buuren, S., & Groothuis-Oudshoorn, K. (2011). mice: Multivariate Imputation by Chained Equations in R. *Journal of Statistical Software, 45*(3), 1–67. <https://doi.org/10.18637/jss.v045.i03>
- Waters, T. L., Barrett, P. M., & March, J. S. (2001). Cognitive-behavioral family treatment of childhood obsessive-compulsive disorder: Preliminary findings. *American Journal of Psychotherapy, 55*(3), 372–387. <https://doi.org/10.1176/appi.psychotherapy.2001.55.3.372>
- Watson, H. J., & Rees, C. S. (2008). Meta-analysis of randomized, controlled treatment trials for pediatric obsessive-compulsive disorder. *Journal of Child Psychology and Psychiatry, 49*(5), 489–498. <https://doi.org/10.1111/j.1469-7610.2007.01875.x>
- Webster-Stratton, C., & Reid, M. J. (2018). The Incredible Years parents, teachers, and children training series: A multifaceted treatment approach for young children with conduct problems. In J. R. Weisz & A. E. Kazdin (Eds.), *Evidence-based psychotherapies for children and adolescents*. (3rd ed., pp. 122–141). The Guilford Press.
- Weissman, M. M., Bland, R. C., Canino, G. J., & Greenwald, S. (1994). The cross national epidemiology of obsessive compulsive disorder: The Cross National Collaborative Group. *The Journal of Clinical Psychiatry, 55*(Suppl. 3), 5–10. <https://pubmed.ncbi.nlm.nih.gov/8077177/>
- Whiteside, S. P. H., & Jacobsen, A. B. (2010). An uncontrolled examination of a 5-day intensive treatment for pediatric OCD. *Behavior Therapy, 41*(3), 414–422. <https://doi.org/10.1016/j.beth.2009.11.003>
- Whiteside, S. P. H., McKay, D., De Nadai, A. S., Tiede, M. S., Ale, C. M., & Storch, E. A. (2014). A baseline controlled examination of a 5-day intensive treatment for pediatric obsessive-compulsive disorder. *Psychiatry Research, 220*(1–2), 441–446. <https://doi.org/10.1016/j.psychres.2014.07.006>
- Williams, L. R., Degnan, K. A., Perez-Edgar, K. E., Henderson, H. A., Rubin, K. H., Pine, D. S., Steinberg, L., & Fox, N. A. (2009). Impact of behavioral inhibition and parenting style on internalizing and externalizing problems from early childhood through adolescence. *Journal of Abnormal Child Psychology, 37*(8), 1063–1075. <https://doi.org/10.1007/s10802-009-9331-3>

- Wood, J. J., Piacentini, J. C., Bergman, R. L., McCracken, J., & Barrios, V. (2002). 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, 31*(3), 335–342. <https://doi.org/10.1207/153744202760082595>
- Wu, M. S., McGuire, J. F., Martino, C., Phares, V., Selles, R. R., & Storch, E. A. (2016). A meta-analysis of family accommodation and OCD symptom severity. *Clinical Psychology Review, 45*, 34–44. <https://doi.org/10.1016/j.cpr.2016.03.003>
- Zisser-Nathenson, A. R., Herschell, A. D., & Eyberg, S. M. (2018). Parent-child interaction therapy and the treatment of disruptive behavior disorders. In J. R. Weisz & A. E. Kazdin (Eds.), *Evidence-based psychotherapies for children and adolescents* (3rd ed., pp. 103–121). The Guilford Press. <https://psycnet.apa.org/record/2017-25888-007>

## Appendix. Measure Summaries

### A.1. Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS)

#### Citation

Scahill, L., Riddle, M. A., McSwiggin-Hardin, M., Ort, S. I., King, R. A., Goodman, W. K., Cicchetti, D., & Leckman, J. F. (1997). Children's Yale-Brown Obsessive Compulsive Scale: Reliability and validity. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36(6), 844–852.  
<https://doi.org/10.1097/00004583-199706000-00023>

#### Instructions

Please circle the appropriate score number that best describes your OCD during the past week.

#### Prompts, Items, and Response Format

*Obsessions* are thoughts, ideas, or pictures that keep coming into your mind even though you do not want them to.

1. How much time do you spend thinking about these things in a day?
  0. None.
  1. Less than 1 hour a day.
  2. Between 1 to 3 hours a day.
  3. Between 3 to 8 hours a day.
  4. More than 8 hours a day.
0. How much do these thoughts get in the way of school work or doing things with friends?
  0. They don't get in the way.
  1. They get in the way a little.
  2. They get in the way sometimes.
  3. They get in the way a lot.

4. They keep you from doing everything.
1. How much do these thoughts bother or upset you?
    0. Not at all.
    1. They bother you a little.
    2. They bother you some.
    3. They bother you a lot.
    4. They bother you so much that it is hard to do anything.
  2. How hard do you try to stop the thoughts or to ignore them?
    0. You always try to resist the thoughts.
    1. You try to resist the thoughts most of the time.
    2. You try to resist the thoughts sometimes.
    3. You usually do not try to resist the thoughts.
    4. They bother you so much that it is hard to do anything.
  3. When you try to fight the thoughts, can you beat them?
    0. You can always beat or stop them.
    1. You can usually beat or stop them.
    2. You can sometimes beat or stop them.
    3. You do not beat or stop them very often.
    4. You can never beat or stop them.

*Compulsions* are acts/behaviors or things that you have to do although you may know that they do not make sense.

4. How much time do you spend doing these things in a day?
  0. None.
  1. Less than 1 hour a day.
  2. Between 1 to 3 hours a day.
  3. Between 3 to 8 hours a day.

4. More than 8 hours a day.
5. How much do these habits get in the way of school or doing things with friends?
  0. They don't get in the way.
  1. They get in the way a little.
  2. They get in the way sometimes.
  3. They get in the way a lot.
  4. They keep you from doing everything.
6. How upset would you feel if you could not do your habits?
  0. Not upset at all.
  1. You would feel a little upset or scared.
  2. You would feel pretty upset or scared.
  3. You would feel very upset or scared.
  4. You would feel as upset or scared as possible.
7. How hard do you try to stop or fight the habits?
  0. You always try to resist the habits.
  1. You try to resist the habits most of the time.
  2. You try to resist the habits sometimes.
  3. You usually do not try to resist the habits, but want to.
  4. You do not try to resist the habits.
8. When you try to fight the habits, can you beat them?
  0. You can always beat or stop them.
  1. You can usually beat or stop them.
  2. You can sometimes beat or stop them.
  3. You do not beat or stop them very often.
  4. You can never beat or stop them.

## **Scoring**

Items are summed to create a total score, with higher scores indicating greater OCD symptom severity.

### **Score Categories**

0 – 7 = *Subclinical*

8 – 15 = *Mild*

16 – 23 = *Moderate*

24 – 31 = *Severe*

32 – 40 = *Extreme*

## A.2. Coercive and Disruptive Behavior Scale – Pediatric OCD (CD-POC)

### Citation

Lebowitz, E. R., Omer, H., & Leckman, J. F. (2011). Coercive and disruptive behaviors in pediatric obsessive-compulsive disorder. *Depression and Anxiety, 28*(10), 899–905. <https://doi.org/10.1002/da.20858>

### Instructions

Please rate the degree to which the following behaviors characterize your OCD-affected child in the past month. Does your child:

### Response Format

0 = *Never*

1 = *Rarely*

2 = *Sometimes*

3 = *Often*

4 = *Almost all the time*

### Items

1. Forbid certain actions because of feelings of extreme disgust (e.g., forbids coughing at the table)?
2. Impose physical closeness or exaggerated clinginess (e.g., won't keep a normal distance, asks never-ending questions)?
3. Impose strict rules of cleanliness or order on other household members (e.g., demands repetitive cleaning or a special laundry schedule)?
4. Neglect his/her personal hygiene in a manner that is offensive to others (e.g., leaves personal items in public spaces, refuses to shower and smells bad)?
5. Force you to behave in certain ways or forbid you to do certain things because of extreme pickiness (e.g., forbids certain foods in the home, demands specific clothes always be ready)?
6. Forbid the use of objects in his/her vicinity because of feelings of fear or disgust (e.g., knives, scissors, creams)?

7. Forbid making changes in the household or react with rage or violence to changes made (e.g., moving furniture, new car)?
8. Forbid the performance of certain normal actions and activities or react with violence or rage if they are performed (e.g., forbids opening windows or watching TV)?
9. Force others to make decisions for him/her or demand endless reassurance to their own decisions?
10. Perform rituals that cause damage to the surroundings (e.g., ruins items by repetitive cleaning, splashes water over the floors cleaning)?
11. Force others to perform actions on his/her behalf due to feelings of fear or disgust and react to refusal with rage or violence (e.g., to open doors for him because of a fear of touching the handle)?
12. Demand special "cuddling" or ritualized contact without regard for the will of others?
13. Forbid the entrance of strangers to the home or limit others in their social activity in the home?
14. Impose intimacy or act provocatively around others (e.g., walks around naked)?
15. Repeat actions or words many times and demand that others listen or attend to him/her until he/she feels it's enough?
16. Impose physical contact or proximity in a way that is unpleasant to others (e.g., approaches and hugs for a long time, shouts into others' ears)?
17. Deprive parents or others of sleep (e.g., demands that they be with him/her all night, turns on and off lights)?
18. Impose rules or behaviors on others due to tactile or other sensitivity and react to disobedience with rage or violence (e.g., forbids certain sounds, demands specific temperature settings)?

## **Scoring**

Items are summed to create a total score, with higher scores indicating greater amounts of OCD-related coercive-disruptive behaviors.

### **A.3. Child Obsessive Compulsive Impact Scale – Revised (COIS-R)**

#### **Citation**

Piacentini, J., Peris, T. S., Bergman, R. L., Chang, S., & Jaffer, M. (2007). Functional impairment in childhood OCD: Development and psychometrics properties of the Child Obsessive-Compulsive Impact Scale–Revised (COIS–R). *Journal of Clinical Child and Adolescent Psychology*, 36(4), 645–653.  
<https://doi.org/10.1080/15374410701662790>

#### **Instructions**

Please rate how much your child's *obsessive-compulsive symptoms* (unwanted thoughts and/or rituals) have caused problems for him or her in the following areas over the past month. If a specific question does not apply, please mark *Not at All*. How much trouble has your child had doing the following things because of his/her OCD?

#### **Response Format**

0 = *Not at all*

1 = *A little*

2 = *Pretty much*

3 = *Very much*

#### **Items**

1. Taking tests or exams.
2. Being with a group of strangers.
3. Leaving the house.
4. Going shopping or trying on clothes.
5. Making new friends.
6. Going to a friend's house during the day.
7. Writing in class.

8. Eating in public other than at a restaurant (like on a picnic in the park or at a friend's house).
9. Doing fun things during recess or free time.
10. Getting to school on time in the morning.
11. Going on a date.
12. Visiting relatives.
13. Getting ready for bed at night.
14. Getting along with his/her parents.
15. Getting along with his/her brothers or sisters.
16. Being with a group of people he/she knows.
17. Going on a family vacation.
18. Having relatives visit.
19. Doing household chores (e.g., washing dishes, taking the garbage out, or cleaning his/her room).
20. Concentrating on his/her work.
21. Going to a restaurant or fast food place.
22. Having a boyfriend/girlfriend.
23. Going to temple or church.
24. Going to school outings or field trips.
25. Keeping friends he/she already has.
26. Eating lunch with other kids.
27. Having someone sleep over at his/her house.
28. Being prepared for class (e.g., having his/her books, paper, or pencils ready when needed).
29. Spending the night at a friend's house.
30. Bathing or grooming (e.g., brushing teeth, combing hair).
31. Completing assignments in class.
32. Doing homework.

33. Getting dressed in the morning.

### **Scoring**

Items are summed to create a total score, with higher scores indicating greater amounts of OCD-related impairment in child functioning.

## A.4. OCD Family Functioning Scale (OFF)

### Citations

Stewart, S. E., Hu, Y.-P., Hezel, D. M., Proujansky, R., Lamstein, A., Walsh, C., Ben-Joseph, E. P., Girona, C., Jenike, M., Geller, D. A., & Pauls, D. L. (2011). Development and psychometric properties of the OCD Family Functioning (OFF) Scale. *Journal of Family Psychology, 25*(3), 434–443. <https://doi.org/10.1037/a0023735>

Stewart, S. E., Hu, Y.-P., Leung, A., Chan, E., Hezel, D. M., Lin, S. Y., Belschner, L., Walsh, C., Geller, D. A., & Pauls, D. L. (2017). A multisite study of family functioning impairment in pediatric obsessive-compulsive disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(3), 241–249. <https://doi.org/10.1016/j.jaac.2016.12.012>

### Instructions

Please complete this to the best of your ability with regard to your child's current OCD. If none of the options apply, please choose the closest option.

### Response Format (Items 1–17)

0 = *Never*

1 = *Monthly*

2 = *Weekly*

3 = *Daily*

### Prompts and Items (Items 1–17)

How often does your child's OCD interfere with family...

1. Morning routines?
2. Lateness to work/school?
3. Mealtimes?
4. Social/family functions?
5. Planning/scheduling?
6. Going to restaurants?

7. Shopping/going to the mall?
8. Trips/vacations?
9. Keeping appointments?
10. Bedtime routines?
11. Religious/spiritual worship?

How often does your child's OCD impact the social life of...

12. Your child with OCD (him/herself)?
13. You?
14. Other family members?

How often does your child's OCD impact the work/school performance of...

15. Your child with OCD (him/herself)?
16. You?
17. Other family members?

### **Response Format (Items 18–21)**

- 0 = *Never*
- 1 = *A little*
- 2 = *Often*
- 3 = *Always*

### **Prompts and Items (Items 18–21)**

When OCD has interfered with family functioning, have you felt...

18. Stressed/anxious?
19. Frustrated/angry?
20. Sad?
21. Guilty?

## **Scoring**

Items are summed to create a total score, with higher scores indicating greater amounts of OCD-related impairment in family functioning.

## A.5. Family Accommodation Scale (FAS)

### Citation

Calvocoressi, L., Mazure, C. M., Kasl, S. V., Skolnick, J., Fisk, D., Vegso, S. J., Van Noppen, B. L., & Price, L. H. (1999). Family accommodation of obsessive-compulsive symptoms: Instrument development and assessment of family behavior. *Journal of Nervous and Mental Disease*, 187(10), 636–642.  
<https://doi.org/10.1097/00005053-199910000-00008>

### Instructions

Please report on how and how often you responded to your child's OCD symptoms during the past week. Refer to the description underneath each question for clarification about the terms used.

### Response Format (Items 1–8)

0 = None or not applicable/No symptoms

1 = Once

2 = 2–3 times

3 = 4–6 times

4 = Every day

### Prompts, Items, and Item Descriptions (Items 1–8)

On how many occasions did you respond to his/her OCD in the following way?

1. Providing reassurance.

*When s/he has expressed worries, fears, or doubts related to obsessions or compulsions, you have reassured him/her that s/he doesn't have to worry, that there are no grounds for his/her concerns, or that the rituals s/he already performed have taken care of his/her concerns. Examples: telling your child that s/he is not contaminated or that s/he has done enough cleaning or checking. Do not include instances in which you provided more general*

*reassurance that s/he will overcome his/her symptoms or feel better soon, or reassurance about matters unrelated to OCD.*

2. Watching your child complete rituals.

*You deliberately watched him/her complete rituals at his/her request or because you thought s/he would want you to do so. Do not include those instances in which you just happened to see him/her performing rituals.*

3. Waiting for your child.

*You waited for him/her to complete compulsive behaviors, resulting in interference with plans you had made.*

4. Refraining from saying/doing things.

*There were things that you did not do or say because of his/her OCD. Examples: you may stop yourself from entering some areas of the house, refrain from physical contact with your child, or avoid conversation topics related to his/her obsessions.*

5. Participating in compulsions.

*You engaged in his/her compulsions or in behaviors which you consider odd or senseless at his/her request, or because you thought s/he would want you to do these things. Examples: you might wash your hands more times than you feel is necessary (or in a ritualized way) or you may check the burners on the stove repeatedly even though you believe the burners are not lit.*

6. Facilitating compulsions.

*Your actions made it possible for him/her to complete the rituals (without you being directly involved in performing the rituals). Examples: you may provide him/her with things s/he needs to perform rituals or compulsions, such as buying excessive quantities of soap or cleaning products; you may drive the car back to the house so s/he can check that doors are locked; or you may create extra space in the house for his/her saved items. Do not include those*

*instances in which you directly participated in rituals as noted in the last question (question 5).*

7. Facilitating avoidance.

*You got involved in his/her efforts to avoid people, places, or things. Or you did something that allowed him/her to avoid. Examples: you may make excuses for him/her when s/he says s/he cannot attend a social function because of OCD-related concerns, take a roundabout driving route because s/he wants to avoid a 'contaminated' area, or open a door so s/he does not have to touch a 'contaminated' door handle. Do not include instances in which you participated in compulsions or did something that helped your child to complete compulsions, as noted in the last two questions (questions 5 and 6).*

8. Helping him/her with tasks of daily living or simple decisions.

*You helped him/her complete simple tasks of daily living or make simple decisions when his/her ability to function was impaired by OCD. Examples: helping him/her to get dressed, to bathe, or to decide what to eat. Do not include instances in which doing a task for him/her included doing something that helped him/her avoid an OCD-related fear (question 7) or in which making a decision for your child consisted of providing reassurance about an OCD-related concern (question 1).*

**Response Format (Items 8–12)**

0 = None or not applicable/No symptoms

1 = *Mild*

2 = *Moderate*

3 = *Severe*

4 = *Extreme*

**Prompts, Items, and Item Descriptions (Items 8–12)**

To what extent did you modify/tolerate his/her OCD?

9. Tolerate odd behaviors/household disruption.

*You put up with odd behaviors on his/her part (e.g., repetitive actions such as going in and out of a doorway), or you put up with unusual conditions in your home because of his/her OCD. This question is specific to behaviors or conditions that you allow to occur. Examples: leaving the home cluttered with old newspapers or ignoring repeated closing and opening of doors. Mild = tolerated slightly unusual behaviour/conditions. Moderate = tolerated behaviors/conditions that are somewhat unusual. Severe = tolerated very unusual behaviour/conditions. Extreme = tolerated extremely aberrant behaviour/conditions. Do not include instances in which you took action to participate in or facilitate compulsions or avoidance noted under the last three questions (questions 5-7).*

10. Taking on his/her responsibilities.

*You take on tasks that are his/her responsibility but which s/he cannot adequately perform because of his/her OCD. Examples: paying his/her bills, taking over his/her chores. Mild = occasionally handles one of his/her responsibilities, but there has been no substantial change in his/her role. Moderate = has assumed his/her responsibilities in one area. Severe = has assumed his/her responsibilities in more than one area. Extreme = has assumed most or all of his/her responsibilities. Do not include doing simple tasks of daily living for him/her, as noted under question 8.*

11. Modifying your personal routine.

*You are currently modifying your leisure time activities or your work or family responsibilities because of your child's OCD. Examples: spending less time socializing or exercising; changing one's work schedule to spend more time attending to him/her. Mild = slightly modified routine but was able to fulfill family and/or work responsibilities and to engage in leisure time activities. Moderate = definitely modified routine in one area (family, work, or leisure time). Severe = definitely modified routine in more than one area. Extreme = unable to attend to work or family responsibilities or to have any leisure time because of his/her OCD.*

## 12. Modifying the family routine.

You are currently modifying what you consider an ordinary family routine because of your child's OCD. Examples: modifying the family's cooking or cleaning practices. Mild = the family routine was slightly modified but remained substantially unchanged. Moderate = the family routine was definitely modified in one area. Severe = the family routine was definitely modified in more than one area. Extreme = the family routine was disrupted in most or all areas.

### **Scoring**

Items are summed to create a total score, with higher scores indicating greater amounts of family accommodation.

## **A.6. Alabama Parenting Questionnaire (APQ)**

### **Citation**

Shelton, K. K., Frick, P. J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology*, 25(3), 317–329. [https://doi.org/10.1207/s15374424jccp2503\\_8](https://doi.org/10.1207/s15374424jccp2503_8)

### **Note**

The APQ consists of 42 items divided across five domain subscales. Only items from the Parental Involvement (10 items), Positive Parenting (6 items), and Inconsistent Discipline (6 items) subscales were used in the current study and are listed here.

### **Instructions**

The following are a number of statements about your family. Please rate each item as to how often it typically occurs in your home. Please answer all items.

### **Response Format**

1 = *Never*

2 = *Almost never*

3 = *Sometimes*

4 = *Often*

5 = *Always*

### **Items by Scale**

#### ***Involvement***

1. You have a friendly talk with your child.
4. You volunteer to help with special activities that your child is involved in (such as sports, boy scouts/girl guides, church youth groups).
7. You play games or do other fun things with your child.
9. You ask your child about his/her day in school.

- 11. You help your child with his/her homework.
- 14. You ask your child what his/her plans are for the coming day.
- 15. You drive your child to a special activity.
- 20. You talk to your child about his/her friends.
- 23. Your child helps plan family activities.
- 26. You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school.

### ***Positive Parenting***

- 2. You let your child know when he/she is doing a good job with something.
- 5. You reward or give something extra to your child for obeying you or behaving well.
- 13. You compliment your child when he/she does something well.
- 16. You praise your child if he/she behaves well.
- 18. You hug or kiss your child when he/she has done something well.
- 27. You tell your child that you like it when he/she helps out around the house.

### ***Inconsistent Discipline***

- 3. You threaten to punish your child and then do not actually punish him/her.
- 8. Your child talks you out of being punished after he/she has done something wrong.
- 12. You feel that getting your child to obey you is more trouble than it's worth.
- 22. You let your child out of a punishment early (like lift restrictions earlier than you originally said).
- 25. Your child is not punished when he/she has done something wrong.
- 31. The punishment you give your child depends on your mood.

### **Scoring**

Items are summed within each subscale to create a total domain score. Higher total domain scores indicate greater levels of the domain construct.

## A.7. Parenting Sense of Competence Scale (PSOC)

### Citations

Gibaud-Wallston, J., & Wandersman, L. P. (1978, August). Development and utility of the Parenting Sense of Competence Scale [Paper]. American Psychological Association, Toronto, Canada.

Johnston, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology*, 18(2), 167–175.  
[https://doi.org/10.1207/s15374424jccp1802\\_8](https://doi.org/10.1207/s15374424jccp1802_8)

### Instructions

Please rate the extent to which you agree or disagree with each of the following statements.

### Response Format

1 = *Strongly disagree*

2 = *Somewhat disagree*

3 = *Disagree*

4 = *Agree*

5 = *Somewhat agree*

6 = *Strongly agree*

### Items

1. The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.
2. Even though being a parent could be rewarding, I am frustrated now while my child is at his / her present age.
3. I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot.
4. I do not know why it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.
5. My parents were better prepared to be a good parent than I am.

6. I would make a fine model for a new parent to follow in order to learn what she would need to know in order to be a good parent.
7. Being a parent is manageable, and any problems are easily solved.
8. A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.
9. Sometimes I feel like I'm not getting anything done.
10. I meet my own personal expectations for expertise in caring for my child.
11. If anyone can find the answer to what is troubling my child, I am the one.
12. My talents and interests are in other areas, not being a parent.
13. Considering how long I've been a parent, I feel thoroughly familiar with this role.
14. If being a parent of a child were only more interesting, I would be motivated to do a better job as a parent.
15. I honestly believe I have all the skills necessary to be a good parent to my child.
16. Being a parent makes me tense and anxious.

## **Scoring**

Items 2, 3, 4, 5, 8, 9, 12, 14, and 16 are reverse-coded. Item scores are summed to create a total score, with higher scores indicating a greater sense of competence in parenting.

## A.8. Parent Tolerance of Child Distress Scale (PT-OCD)

Adapted from the Distress Tolerance Scale (DTS)

### Citation

Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion*, 29(2), 83–102. <https://doi.org/10.1007/s11031-005-7955-3>

### Instructions

Please indicate how much you agree or disagree with the following statements.

### Response Format

- 1 = *Strongly agree*
- 2 = *Mildly agree*
- 3 = *Agree & disagree equally*
- 4 = *Mildly disagree*
- 5 = *Strongly disagree*

### Items

1. My child's distress or upset is unbearable to me.
2. When my child feels distressed or upset, all I can think about is how bad they feel.
3. I can't handle my child feeling distressed or upset.
4. My child's feelings of distress are so intense that they completely take me over.
5. There's nothing worse than my child feeling distressed or upset.
6. I can tolerate my child's distress or upset as well as most parents.
7. My child's feelings of distress or being upset are not acceptable.
8. I'll do anything to avoid my child feeling distressed or upset.

9. Other parents seem to be able to tolerate their child feeling distressed or upset better than me.
10. My child's being distressed or upset is always a major ordeal for me.
11. I am ashamed when my child feels distressed or upset.
12. My child's feelings of distress or being upset scare me.
13. I'll do anything to stop my child from feeling distressed or upset.
14. When my child feels distressed or upset, I must do something about it immediately.
15. When my child feels distressed or upset, I cannot help but concentrate on how bad the distress is.

### **Scoring**

Item 6 is reverse-coded. Item scores are summed to create a total score, with higher scores reflecting a greater ability of the parent to tolerate emotional distress in their child.

## **A.9. PMT Program Evaluation Form**

### **Instructions**

Please read the following statements and circle the number corresponding with the given responses ranging from *very dissatisfied* (1) to *very satisfied* (5). Please indicate your overall satisfaction with the following aspects of the parent-only Thursday group:

### **Response Format**

1 = *Very dissatisfied*

2 = *Somewhat dissatisfied*

3 = *Neutral*

4 = *Somewhat satisfied*

5 = *Very satisfied*

### **Items – Multiple Choice**

1. Delivery of information – How easy it was to understand material.
2. Applicability of session information to your family/situation.
3. Breadth of strategies/skills taught.
4. Depth of information presented for strategies/skills.
5. Pacing or structure of session content.
6. Level of engagement and opportunity to participate in parent-only sessions
7. Knowledge base of session facilitator.
8. Availability of session facilitator outside of sessions.
9. Volume of parent homework.
10. Applicability of parent homework.
11. Frequency of phone check-ins.
12. Duration of phone check-ins.
13. Overall impression of Thursday parent-only sessions.

## **Instructions & Items – Open-Ended**

Please read the following four open-ended questions and use the lines below each question to write in your response:

1. What part of the group did you find the most useful in managing your child's coercive/ disruptive OCD behaviour?
2. What part of the group did you find the least useful in managing your child's coercive/ disruptive OCD behaviour?
3. Is there anything that was not covered that would have been helpful in managing your child's coercive/disruptive OCD behaviour?
4. Is there anything else that you would change about the group or suggest adding/removing for future groups?