

*Annual Review of Clinical Psychology*  
Obsessive–Compulsive  
Disorder in Children and  
Adolescents

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### Keywords

obsessive–compulsive disorder, OCD, cognitive behavioral therapy, CBT, exposure and response prevention, ERP, children, adolescents

### Abstract

Obsessive–compulsive disorder (OCD) in children and adolescents is a neurobehavioral condition that can lead to functional impairment in multiple domains and decreased quality of life. We review the clinical presentation, diagnostic considerations, and common comorbidities of pediatric OCD. An overview of the biological and psychological models of OCD is provided along with a discussion of developmental considerations in youth. We also describe evidence-based treatments for OCD in childhood and adolescence, including cognitive behavioral therapy (CBT) with exposure and response prevention (ERP) and pharmacotherapy. Finally, research evaluating the delivery of CBT in different formats and modalities is discussed, and we conclude with suggestions for future research directions.

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## INTRODUCTION

Obsessive-compulsive disorder (OCD) is a psychiatric disorder characterized by the presence of obsessions (i.e., recurring, unwanted thoughts or ideas) and/or compulsions (i.e., repetitive behaviors performed with the intention of reducing obsessional distress; APA 2022). These symptoms are often time-consuming, result in significant distress and/or functional impairment, and can occur with varying levels of insight (APA 2022). As of the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders-Text Revision* (APA 2022), OCD is categorized under the class of obsessive-compulsive and related disorders, which are separate from anxiety disorders and also include body dysmorphic disorder, hoarding disorder, trichotillomania, and excoriation (skin picking) disorder.

According to a representative sample of American adults, the 12-month prevalence rate for OCD is 1.2%, while the lifetime prevalence rate is 2.3% (Ruscio et al. 2010). This is consistent with research suggesting that the worldwide prevalence rate for OCD among adults is about 2%

(Sasson et al. 1997). Much of the epidemiological research regarding OCD in children and adolescents has been conducted with samples recruited from schools. According to this body of literature, estimated global prevalence rates of pediatric OCD range from 2% to 4% (Geller 2006). Across studies of children with OCD, the mean age of symptom onset is approximately 10 years old, and males demonstrate greater prevalence, although this gender difference disappears in later adolescence (Geller 2006). In a nationally representative survey of US adults, approximately 25% of males with OCD indicated OCD symptom onset prior to age 10, whereas less than 5% of adult females reported OCD symptoms before age 10 (Ruscio et al. 2010). However, no gender differences in OCD symptoms are found in later adolescence, and over 50% of males and females with OCD report symptom onset prior to age 18 (Albert et al. 2015, Ruscio et al. 2010). Pediatric OCD is frequently underdiagnosed; one study of high school students in Brazil indicated that 9.3% of adolescents who met criteria for OCD had received a diagnosis, while only 6.7% had received treatment (Vivan et al. 2013).

Phenomenologically, OCD symptom severity manifests similarly across the life span (Geller 2006). However, across pediatric and adult presentations of OCD, there are differences in the prevalence rates of specific symptom dimensions. Specifically, children and adolescents may report higher levels of harm-related obsessions than adults, while adolescents may report higher levels of religious obsessions than children and adults (Geller 2006). Additionally, older children and adolescents demonstrate greater magical thinking and somatic obsessions than younger children (Selles et al. 2014). As a group, adolescents tend to demonstrate some similarity with both pediatric and adult presentations of OCD; for this reason, findings related to OCD symptom prevalence among adolescents are somewhat mixed. For example, while some studies have found that sexual obsessions are less common in children than in adolescents and adults (Geller 2006, Selles et al. 2014), others have found no difference in these symptoms between children and adolescents (Farrell et al. 2006). Further research is needed to examine how cultural and developmental factors influence the onset and manifestation of OCD symptoms (Mathes et al. 2019).

As is also the case with adult presentations of OCD, family accommodation of symptoms is an important factor in pediatric OCD (Lebowitz et al. 2016). Family accommodation involves any behavior on the part of parents and other family members that helps reduce distress associated with the child's OCD symptoms by facilitating the completion of rituals or providing reassurance. Family accommodation is thus negatively reinforced via reduced child distress and reduced disruption of family routines, and this negative reinforcement further perpetuates the child's OCD symptomology. This behavior is common in parents of children with OCD; one study found that more than half of parents endorsed daily engagement in some form of symptom accommodation (Peris et al. 2008). In another study, families of children and adolescents reported high levels of various forms of symptom accommodation; the most frequently reported forms of accommodation were provision of reassurance, participation in rituals, and family-wide avoidance of the child's feared stimuli (Storch et al. 2007b).

Although family accommodation of OCD symptoms may reduce an individual's distress in the short term, long-term outcomes are often detrimental, both to the individual with OCD and to the greater family system (Shimshoni et al. 2019). Higher levels of family accommodation are often associated with greater OCD symptom severity, parent-rated functional impairment, and frequency of externalizing and internalizing problems (Lebowitz et al. 2016). Furthermore, a systematic review of studies examining family accommodation in pediatric OCD demonstrated that higher levels of symptom accommodation were associated not only with symptom severity but also with resistance to therapeutic and psychopharmacological interventions (Lebowitz et al. 2012). However, despite consistent findings indicating that family accommodation is associated with more severe OCD symptoms, worse treatment outcomes, and parental distress, it is often difficult for

family members to resist as children may become angry and, in some cases, abusive when their requests for accommodation are denied or ignored (Caporino et al. 2012, Peris et al. 2008).

A number of psychological disorders are commonly comorbid with OCD in pediatric samples. In a recent meta-analysis of studies examining OCD comorbidities across the life span, 69% of the total sample had at least one comorbid disorder, most commonly anxiety disorders, mood disorders, neurodevelopmental disorders, and other obsessive-compulsive and related disorders (Sharma et al. 2021). Likewise, in a study of children and adolescents, 74% of respondents met criteria for at least one comorbid disorder; the most common diagnoses were generalized anxiety disorder, major depressive disorder, attention-deficit/hyperactivity disorder, and disruptive behavior disorders including oppositional defiant disorder and conduct disorder (Storch et al. 2008a). In that study, individuals with comorbid disorders tended to experience more severe OCD symptoms and were more resistant to treatment than those with OCD alone.

There is some evidence of changes in comorbidity patterns across the life span. In children with OCD, anxiety disorders are the most frequently observed comorbidity, while mood disorders are the most frequently observed comorbidity in adults with OCD (Sharma et al. 2021). This is consistent with findings that rates of comorbid depression in children with OCD are low but increase to near-adulthood levels in adolescence (Geller 2006, Selles et al. 2014). Additionally, children and adolescents with OCD experience higher rates of comorbid specific phobias and tics than adults (Farrell et al. 2006).

## ETIOLOGY

While the exact etiology of OCD is complex and multidetermined, and much remains unknown, several models exist that attempt to explicate putative causal and maintenance factors. These models can be practically delineated at biological and psychological levels.

### Biological Models

The biological model of OCD includes both genetic and neurobiological factors. Studies demonstrate that genes play an important role in the development of OCD, while dysfunction in the cortico-striato-thalamo-cortical (CSTC) loop is a key neurobiological factor associated with OCD symptoms. The genetic and neurobiological sections below further discuss findings related to these two factors.

**Genetic factors.** Extant literature suggests that heredity may play a critical role in an individual's susceptibility to developing OCD (Browne et al. 2015). Indeed, twin studies reveal that OCD is approximately 40–50% heritable (Mataix-Cols et al. 2013). In an effort to better understand polygenetic risk factors for OCD, genome-wide association studies have been conducted to shed light on the unique constellations of genes underpinning OCD (den Braber et al. 2016). However, results of such genome-wide analyses have been somewhat inconclusive in terms of weak diagnostic predictive power of particular genetic profiles (Mahjani et al. 2021). That said, findings that have emerged suggest that rare coding variants (i.e., *de novo* mutations; Cappi et al. 2020) and specific genes governing the glutamatergic neurotransmitter system (IOCDF-GC/OCGAS 2018) represent salient genetic factors in the manifestation of OCD.

More recently, Strom et al. (2021) explicated findings that suggest a genome-wide locus underpinning OCD, further emphasizing the complex, polygenetic nature of this condition. One critique of this line of research is that many of the genetic studies of OCD to date have been conducted with predominantly European-American samples. In response to this concern, a large-scale, collaborative global research study—the Latin American Trans-ancestry Initiative in OCD Genomics (LATINO)—is currently underway. This project, which aims to collect and analyze

genetic profiles from 5,000 Latin American individuals with OCD, is intended to promote global mental health efforts and health equity surrounding OCD (see <http://latinostudy.org>; Crowley et al. 2023).

**Neurobiological factors.** Neurobiological models have also been developed to articulate structural and functional abnormalities in the neural circuitry of children and adults with OCD (Maia et al. 2008, Pauls et al. 2014). The most empirically supported neurobiological model of OCD emphasizes anatomical dysfunctions within the CSTC loop. Generally speaking, direct and indirect neural pathways within particular CSTC loops in the prefrontal cortex serve either excitatory or inhibitory functions on higher-order behaviors, thereby maintaining adaptive homeostasis. Within OCD, particular CSTC circuits—most notably in the orbitofrontal cortex, anterior cingulate cortex, and caudate nucleus—have been shown to be dysfunctional and hyperactive (Maia et al. 2008). Such dysfunctional circuitry is purported to underpin excessive, uncontrollable obsessions and compulsions (Guzick et al. 2020).

Additionally, dysfunction in specific CSTC loops within the dorsolateral prefrontal cortex, dorsal anterior cingulate cortex, and related basal ganglia, limbic, and thalamic structures has been implicated as a key neurobiological mechanism within OCD (Karas et al. 2019, McGovern & Sheth 2017). Neuromodulation of such dysfunctional and hyperactive cortical-subcortical loops via stimulation of the ventral capsule/ventral striatum in deep brain stimulation (DBS) therapy represents a promising intervention for treatment-resistant OCD (Gadot et al. 2022, Guzick et al. 2020).

## Psychological Models

Two theoretical models explicating the etiology and maintenance of pediatric OCD that have garnered the most empirical support are cognitive and behavioral in nature. These models generally fall within the umbrella of cognitive behavioral therapy (CBT) for OCD (Franklin & Foa 2021)—an empirically supported, first-line intervention for pediatric OCD (Freeman et al. 2018). While these models differentially emphasize the roles of cognitive and behavioral factors underpinning OCD, they share some overlap, including a joint emphasis on treatment grounded in empiricism, along with the role of exposure as a key treatment element.

**Behavioral models.** Behavioral learning models have historically been used to understand psychological processes maintaining OCD (Dollard & Miller 1950). According to learning theory, and more specifically Mowrer's (1960) two-factor model, a neutral stimulus (e.g., intrusive thoughts) becomes paired with a fear response via classical conditioning. Operant conditioning maintains that association through a process of negative reinforcement in which compulsive behaviors in the presence of intrusive obsessive thoughts weaken the aforementioned fear response, thus increasing the probability that those behaviors will occur in the presence of future obsessive thoughts (Foa & McLean 2016). For example, a child observes fellow classmates failing to wash their hands after using the restroom and subsequently using communal art supplies; the child then forms an association between contamination and communal art supplies (classical conditioning). Subsequently, the child washes their own hands immediately after using the art supplies and experiences a reduction in contamination-related distress (negative reinforcement), thus making it more likely that hand washing, or other cleaning rituals, will occur in the presence of future contamination-related distress.

In addition to overt compulsive behavior, avoidance of situations reliably linked to obsessive content is another salient behavioral maintenance factor in OCD. As discussed above, this can often manifest within family accommodation, a process by which parents or other family members assist the child with rituals and other avoidance behaviors or otherwise structure the child's life in service of maladaptive avoidance of OCD-related triggers (Storch et al. 2007b). Compulsions,

avoidance behaviors, and family accommodation can all reduce the range of adaptive, developmentally appropriate behavior in children with OCD and likely contribute to reduced quality of life and impairment in numerous domains (Franklin & Foa 2021). Essentially, the link between obsessions and compulsions maintained via negative reinforcement means that while compulsions and avoidance behavior result in fleeting relief from obsession-related distress, the aforementioned obsession–compulsion link paradoxically strengthens the salience of distressing obsessive content. This helps maintain OCD symptomology and likely contributes to the chronicity of OCD throughout the life span (Moritz 2008).

As described in more detail in the section titled Treatment, a behavioral theory of OCD posits that treatment involves patient exposure to obsessive thoughts while simultaneously refraining from avoidance or compulsive rituals, effectively weakening the conditioned association between obsessive triggers and fear response (Foa & Kozak 1986). A more contemporary behavioral framework, the inhibitory learning model (Craske et al. 2014), builds upon extant learning theory principles by emphasizing the importance of strengthening the inhibitory learning system (i.e., obsessional stimuli no longer tightly linked with fear-based reaction). It also involves maximizing expectancy violations, generalizing exposure principles to a range of situations and life contexts, and instantiating distress tolerance skills and acceptance of fluctuations in the habituation process (Abramowitz & Arch 2014, McGuire & Storch 2019).

**Cognitive models.** Consistent with historical developments in cognitive therapy (Beck et al. 1979), the cognitive theory of OCD posits maladaptive beliefs and distorted interpretations of intrusive mental content (e.g., obsessive thoughts) as important maintenance factors (Berman et al. 2017). Per the cognitive theory, it is not the presence of intrusive thoughts themselves that is problematic. In fact, research conducted across the globe has found that intrusive, unwanted mental content (i.e., thoughts, images, premonitory urges) is a common element of human experience irrespective of OCD diagnosis (Radomsky et al. 2014). Rather, it is the *interpretation* of such threatening thoughts as excessively meaningful (i.e., maladaptive interpretations about the importance of intrusive thoughts). Essentially, this fusion of intrusive mental content with overt behavioral action articulated in the thought is the central cognitive-based maintenance factor of OCD (Rachman 1998, Wilhelm & Steketee 2006).

Additional maintaining factors that have been explicated within the cognitive theory of OCD (Salkovskis et al. 1998) involve several deeply rooted core beliefs, including, among many others, (a) that failing to prevent harm to oneself or others is the same as having deliberately perpetrated the harm, (b) that failing to neutralize obsessive mental content with compulsions is equivalent to desiring or wishing for the distressing scenario specified in the obsessive content to actually come true, and (c) an unworkable belief in the ability to continuously exert complete control of mental content (for further explication of dysfunctional cognitive biases within OCD, see Salkovskis 1985). Within the pediatric OCD literature specifically, overly inflated sense of responsibility, perfectionism, intolerance of uncertainty, and excessive importance of thoughts have been identified as salient cognitive maintaining factors (Cervin et al. 2020, Coles et al. 2010, Evans et al. 2011). As described in more detail in the section titled Treatment, a cognitive theory posits that restructuring or modifying distorted interpretations of intrusive obsessive content (rather than the actual intrusive thoughts themselves, which are less amenable to restructuring; see McKay et al. 2021), along with addressing the overarching core beliefs described above, is a key treatment principle (Wilhelm & Steketee 2006).

One additional emerging cognitive-based conceptualization of OCD that warrants attention involves an acceptance and commitment therapy (ACT) approach. Within this model (Twohig et al. 2015, 2018), cognitive defusion (i.e., distancing) from intrusive obsessive thoughts is

encouraged rather than direct modification of the content of such thoughts. That is, patients are taught to notice intrusive thoughts from a nonjudgmental perspective while continuing to engage in values-based actions rather than taking intrusive thoughts at literal face value and automatically responding with avoidance or compulsions. However, relatively less empirical support exists for an ACT model of OCD, and the research that has been conducted to date mostly includes adults (but for an example of this approach applied to adolescents, see Armstrong et al. 2013). As such, consideration should be taken when explicating an ACT approach for OCD, especially within child and adolescent populations (Spencer et al. 2023).

## **DEVELOPMENTAL CONSIDERATIONS IN YOUTH**

Several noteworthy developmental considerations are important when assessing and treating children and adolescents with OCD. Since rituals, repetitive behaviors, and just-right behaviors are common in childhood, clinicians must evaluate whether these behaviors are developmentally appropriate or are indicative of OCD psychopathology. Parents often report that children have bedtime rituals, preferences for lining objects in straight lines, and other rigid routines (Evans et al. 1997). These behaviors can be adaptive in terms of providing comfort and meaning-making and are frequently seen in typically developing children. For instance, morning routines can be beneficial because they provide families with more structure to help the child get to school on time and have a positive start to the day; however, a morning routine could reach a compulsive level if a child reports fears related to something bad happening if the routine is not exactly followed or if they feel the need to engage in a certain behavior (e.g., brushing teeth) until it feels just right. Additionally, childhood fears, such as worries related to monsters or ghosts, may often occur in youth but rarely are considered obsessive worries. They may only reach the threshold of an obsessive worry if they occur consistently throughout the day, lead to significant anxiety, and are functionally linked to rituals, such as frequently checking places in the house for monsters or avoiding places where monsters could appear. Overall, to distinguish between normative repetitive thoughts and behaviors and clinical OCD, clinicians should examine the distress, interference, and time associated with the thoughts and actions (Scahill et al. 1997).

The degree of symptom insight present is another important consideration in youth with OCD. An individual's recognition of the irrationality of recurrent OCD thoughts and behaviors can vary across the life span, but children tend to have less insight than adolescents and adults (Selles et al. 2020). Past studies have shown that lower insight is associated with increased avoidance and greater OCD symptom severity (Selles et al. 2018, Storch et al. 2008b); however, it has been found that insight improves following CBT with exposure and response prevention (ERP; Selles et al. 2020). Given that expectancy violations occur when individuals face feared situations without engaging in rituals, it makes sense that children's awareness of the irrationality of obsessions/compulsions increases following engagement in exposures. Moreover, Weil et al. (2013) demonstrated that metacognitive ability (i.e., ability to reflect on one's thoughts and behaviors) increases during adolescence, which may also play a role in the development of symptom insight. Finally, there are mixed findings regarding the association between baseline insight and treatment outcomes in youth: Multiple pediatric OCD trials have shown worse treatment outcomes in youth with lower insight (Garcia et al. 2010, Storch et al. 2008b), while findings from a recent study that combined data from multiple pediatric CBT trials demonstrated no association (Selles et al. 2020).

## **ASSESSMENT**

While comparatively less voluminous than the adult literature, several measures assessing OCD symptoms have been developed and validated for use with pediatric samples. Three of the

most commonly used among these include the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS; Scahill et al. 1997), the Children's Florida Obsessive-Compulsive Inventory (C-FOCI; Storch et al. 2009), and the Obsessive Compulsive Inventory–Child Version (OCI-CV; Foa et al. 2010). Descriptions of each of these measures, as well as summaries of their psychometric properties, are provided below.

### **Children's Yale-Brown Obsessive Compulsive Scale**

The CY-BOCS (Scahill et al. 1997) is a 10-item, semistructured interview measure of OCD symptom severity adapted from the original, adult version of the Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Goodman et al. 1989). A second edition, the CY-BOCS-II (Storch et al. 2019), was developed to correspond with changes made to the Y-BOCS-II to reflect updates to the field's conceptualization of OCD-related phenomenology and improved precision in measurement (Storch et al. 2019). It can be administered jointly to both the child and their parent(s) or separately to each (Scahill et al. 1997). The CY-BOCS-II consists of a section measuring the severity of obsessions and compulsions and a comprehensive symptom checklist assessing the presence of certain obsessions and compulsions. Like the original CY-BOCS (Storch et al. 2004), the CY-BOCS-II has demonstrated good internal consistency and construct validity (Storch et al. 2019). In sum, both versions of the CY-BOCS reliably and validly measure OCD symptom severity, even for patients with co-occurring anxiety and depression.

### **Children's Florida Obsessive-Compulsive Inventory**

The C-FOCI (Storch et al. 2009) is a 17-item, self-report screening measure of OCD symptom severity adapted from the original adult version of the Florida Obsessive-Compulsive Inventory (FOCI; Storch et al. 2007a). Like the CY-BOCS and CY-BOCS-II, the C-FOCI consists of both a symptom checklist assessing the presence or absence of various OCD symptoms and a severity scale measuring the amount of time consumed by engagement in symptoms, avoidance, degree of control over symptoms, and associated distress and functional impairment. It has demonstrated evidence of good internal consistency, construct validity, and ability to differentiate between clinical and nonclinical levels of OCD symptoms. While relatively less researched and used in clinical practice compared with the CY-BOCS, it has demonstrated effectiveness as a measure of treatment progress for children with OCD (Storch et al. 2009). A revised version is forthcoming.

### **Obsessive Compulsive Inventory–Child Version**

The OCI-CV (Foa et al. 2010) is a 21-item, self-report measure of OCD symptom severity adapted from the original, adult version of the Obsessive–Compulsive Inventory (OCI; Foa et al. 1998) and its revision, the OCI-R (Foa et al. 2002). The OCI-CV has demonstrated a factor structure similar to that of the OCI-R with six subscales measuring severity of the following domains of OCD symptoms: doubting/checking, obsessing, hoarding, washing, ordering, and neutralizing (Foa et al. 2010). The full OCI-CV scale has demonstrated good reliability; however, internal consistency ranges widely among its subscales (Jones et al. 2013). Moreover, while the OCI-CV has demonstrated good convergent validity, findings related to its discriminant validity are mixed; some results indicate strong associations between scores on the OCI-CV and severity of depressive symptoms (Jones et al. 2013). While the OCI-CV is notably comprehensive in its assessment of multiple domains of OCD, it may be better suited to measure symptom presence rather than symptom severity due to its focus on frequency alone as an operationalization of severity (Jones et al. 2013).

## Other Measures

Other measures have been used to assess the following OCD constructs: severity [Child Obsessional Compulsive Inventory–Revised (CHOCI-R); Uher et al. 2008], impairment [Child Obsessive-Compulsive Impact Scale–Revised (COIS-R); Piacentini et al. 2007], family accommodation [Family Accommodation Scale–Self-Rated Version (FAS-SR); Pinto et al. 2013], and family functioning [OCD Family Functioning (OFF) Scale; Stewart et al. 2011].

## TREATMENT

CBT with an emphasis on ERP is an evidence-based, gold standard treatment for OCD in children and adolescents (Freeman et al. 2018). The following section reviews the core treatment components of this intervention, including functional assessment, psychoeducation, symptom monitoring, ERP, and parent interventions (Abramowitz et al. 2019, Foa et al. 2012). Similar to other clinical science treatment development efforts, extant treatment manuals detailing core treatment components were originally developed for adults and adapted in a developmentally appropriate, downward fashion for treatment of youth.

### Core Treatment Components of Cognitive Behavioral Therapy for Obsessive–Compulsive Disorder

A thorough functional assessment of symptoms occurs at the start of treatment. This involves assessing factors preceding and consequences following symptoms (Abramowitz et al. 2019). Parental involvement is also important during this process because parental responses and behaviors, including symptom accommodation and reassurance (i.e., family accommodation; Storch et al. 2007b), often function to maintain symptoms (McGrath & Abbott 2019).

Following thorough assessment of the child's OCD symptoms, psychoeducation is provided to both the child and their family. This includes defining obsessions and compulsions using developmentally appropriate, child-friendly language and metaphors, such as describing obsessions as “sticky thoughts” to help increase understanding. Describing OCD as a brain problem and externalizing it can also help decrease any feelings of shame, stigma, and self-blame that the child may experience. Metaphors—such as the brain being a faulty “fire alarm” that misfires to signal threat when threat is absent, or OCD “hijacking” the child's brain—may help facilitate further understanding and externalization of OCD. Using examples from the child's clinical presentation, the therapist can explain how rituals lead to relief in the short term but increased distress in the long term. This can be contrasted with ERP, which can be framed as short-term distress leading to long-term relief. Using phrases like “battling the bully” and “fighting back against OCD” can help motivate the child to resist rituals.

Additionally, the role of parents in treatment can be framed in metaphoric terms, with the child functioning as the captain of their treatment team, much like a sports team captain. The parent's role is to serve as the child's cheerleader and cotherapist, supporting them in treatment and in exposures, while the therapist is framed as the team's coach. Throughout treatment, parents are involved in sessions and exposures with the therapist teaching parents how to cocoach during exposures so that the parents understand how to assist with exposures at home.

Next, the therapist provides the family with psychoeducation about the rationale for and components of ERP. Broadly speaking, ERP involves children approaching feared situations or triggers related to their obsessions while refraining from engaging in compulsions or rituals. Individuals learn experientially that they can tolerate feelings of anxiety and that high levels of anxiety do not last forever (Craske et al. 2014). An additional, developmentally appropriate adaptation may

include describing exposures as “experiments.” Providing thorough and clear psychoeducation about exposure and its underlying mechanisms can increase treatment buy-in and adherence. Homework is another essential component of effective ERP (Wheaton & Chen 2021) and is also described in the psychoeducation phase of treatment. Connecting therapy homework to examples from the child’s life and interests, such as practicing for a sport or learning a musical instrument, can help emphasize the importance of this component. Tools such as a fear thermometer can be used to identify the level of anxiety and distress children experience during exposures. This scale can be along a 0–100 or 0–10 scale, and for younger children, emojis of facial expressions progressing from a smiling face for easier exposures to a frowning face for more difficult exposures may be used.

OCD symptom monitoring is conducted at the beginning of treatment to increase children’s and parents’ awareness of triggers and rituals. Here, children (with parental assistance) are instructed to record triggers, rituals, duration of rituals, and the anxiety number associated with the event. This valuable information can be used as a starting point for exposure hierarchy development (Foa et al. 2012). Hierarchies list triggers for obsessions along with a measure of distress, such as the number that completing exposure without ritualizing would register on the fear thermometer. A wide variety of situations and triggers across a range of intensity is included in the hierarchy to increase generalizability of the intervention to diverse life contexts (Abramowitz & Arch 2014).

### **Cognitive Components of Treatment**

While the need for developmentally appropriate adaptations (e.g., more concrete and less abstract language) is especially apparent compared with other aspects of treatment, cognitive interventions from existing models described above are often included in the treatment of children with OCD (Wilhelm & Steketee 2006). Continuing to use the externalization metaphor of the bully, children can “talk back to” the bully/OCD and can use phrases such as “I don’t have to listen to you, bully” while engaged in exposures. Additional phrases such as “This is hard, and I can do it” can be used to increase self-efficacy with exposures. However, the use of cognitive interventions should be implemented judiciously with children because cognitive-based positive self-talk statements may inadvertently become a ritual or reassurance such as “It will be okay.”

### **Exposure and Response Prevention**

As described elsewhere (e.g., Foa et al. 2012) and articulated throughout this review, ERP is the central component of CBT for pediatric OCD. Broadly speaking, exposures involve engaging in situations that trigger obsessions and fears and resisting rituals and avoidance. They are conducted in various forms. More specifically, in-vivo exposures involve children directly engaging in triggering situations during sessions. For example, a child with harm obsessions may hold a knife to the therapist’s throat to demonstrate that they do not act on their fear. Additionally, imaginal exposures involve writing in detail the fears children have that could trigger anxiety. Imaginal exposures may occur more frequently for symptoms that are not easily replicated, such as a child with scrupulosity who is afraid of going to hell when they die. For an imaginal exposure, the child may write the word “hell” repeatedly or write a detailed account of going to hell. Additionally, developmentally tailoring exposure exercises for children and adolescents and including special interests or preferred activities as themes in exposures or as behavioral contingencies for successful completion (i.e., rewards) are likely to enhance treatment adherence (Abramowitz et al. 2019).

Once a hierarchy is developed, children begin engaging in exposures. Exposures begin at lower levels on the hierarchy to encourage engagement in treatment and to facilitate learning

(Foa et al. 2012). As treatment progresses, children move up the hierarchy to more challenging exposures. Patients report their peak subjective units of distress scale (SUDS) rating during exposures; habituation-based models suggest that a patient's SUDS ratings should be monitored until they report a 50% SUDS reduction. After exposures, clinicians and patients should discuss the patient's view of their distress reduction with the hope that expectations were violated (e.g., something bad did not happen) and that new learning has occurred. In the case of pediatric OCD, such postexposure processing should be tailored in a developmentally appropriate way, using some of the phrases and concrete language discussed in the subsections above.

### **Parental Treatment Components**

In conjunction with CBT, it is important to provide family-focused interventions to address maintaining factors that parents may engage in. Particular attention is paid to accommodation and reassurance behaviors. As described above, while parents' intentions behind family accommodation behaviors are to take care of and help their child, such behaviors paradoxically have the opposite effect and can maintain symptoms (Lebowitz et al. 2016). Parent treatment interventions in a CBT for OCD framework involve reduction of accommodation and reassurance-providing behaviors and the instantiation of alternative behaviors that provide support for the child as they engage in exposures (Abramowitz et al. 2019). Fortunately, many treatment development efforts have been put forth within the realm of CBT for anxiety disorders in youth (in addition to OCD) that specifically address parental (i.e., family) accommodation of child symptomology (Lebowitz et al. 2020). Such resources may prove useful in augmenting ERP-specific treatment manuals (e.g., Foa et al. 2012), which are often geared toward provision of treatment for a specific individual.

### **Research Support for Cognitive Behavioral Therapy**

CBT with ERP is the gold standard treatment for youth with OCD; the intervention has shown empirical support in randomized controlled trials (RCTs) and been recommended as a first-line treatment by leading health care organizations (Freeman et al. 2018, NICE 2013, Öst et al. 2016). A recent meta-analysis demonstrated that CBT is superior to placebo (Hedges's  $g = 0.93$ ) and waitlist controls (Hedges's  $g = 1.53$ ; Öst et al. 2016), while other trials found that CBT is more effective than active treatment comparisons (e.g., psychoeducation and relaxation training) in young children (Freeman et al. 2008, 2014) and school-aged children to adolescents (Piacentini et al. 2011). Additionally, many children and adolescents who receive CBT significantly respond to treatment; meta-analyses demonstrate that approximately 68–70% of youth are considered treatment responders (McGuire et al. 2015, Öst et al. 2016). The CBT response rate in youth is significantly higher than the 49% rate of youth who respond to selective serotonin reuptake inhibitors (SSRIs) alone and similar to the 66% rate of youth who respond to CBT plus SSRIs (Öst et al. 2016).

Moreover, in community outpatient clinics in Denmark, Sweden, and Norway, Torp et al. (2015) demonstrated similar findings related to the effectiveness of CBT. In 241 youth with OCD, 73% significantly responded after 14 weeks of treatment from nonspecialty clinicians who had received training and case consultation. Treatment was durable: 90% of youth were treatment responders at 3 years posttreatment, and 73% were in clinical remission (Melin et al. 2020).

### **Psychopharmacological Treatment**

Pharmacological interventions are an empirically supported treatment of childhood OCD (McGuire et al. 2015). Clomipramine, a tricyclic antidepressant, was the first psychopharmacological treatment that demonstrated significant improvements compared with placebo; however, it is no longer a first-line treatment due to the possibility of increased side effects compared with

SSRIs (Bloch & Storch 2015). SSRIs are the current first-line medication for pediatric OCD due to their strong evidence base in RCTs and relatively safe side effect profile (McGuire et al. 2015). The US Food and Drug Administration has approved sertraline, fluvoxamine, fluoxetine, and clomipramine for the treatment of children and adolescents with OCD (Koran et al. 2007). Dosage recommendations depend on the pharmacologic potency of the SSRI and the youth's metabolism and OCD severity; sertraline and fluvoxamine have a typical target dosage of approximately 200 mg/day, and fluoxetine has a typical target dosage of approximately 40–60 mg/day (Lambert 2008). Other off-label SSRIs used to treat youth with OCD include citalopram, escitalopram, and paroxetine (Koran et al. 2007, Lambert 2008). It is suggested that youth and their parents regularly meet with their psychiatrist when first starting these medications, and once OCD severity improves on a stable dose, treatment continuation is usually recommended to prevent relapse (Pittenger & Bloch 2014). However, in an RCT with SSRI-medicated adults with OCD who significantly responded to ERP treatment, Foa et al. (2022) found that discontinuation of SSRIs resulted in noninferior OCD symptom severity outcomes compared with those of adults who continued their SSRIs. A similar study is currently being conducted by the last two authors of this review (W.K.G. and E.A.S.) in youth with OCD.

## TREATMENT DELIVERY FORMATS

### Intensive Treatment

While all CBT-oriented treatments for pediatric OCD consist of similar components [psychoeducation, hierarchy development and external rewards (if needed), ERP, parental involvement, and relapse prevention], the dosage of these components may vary depending on the nature of the presentation and the needs of the patient (Freeman et al. 2018, Storch et al. 2007c). As mentioned above, the first-line psychosocial treatment for mild to moderate pediatric OCD is CBT, and the combination of CBT and medication is recommended for moderate to severe OCD (Freeman et al. 2018). However, access to traditional models of pediatric OCD treatment (i.e., weekly outpatient individual therapy) is often limited by systemic barriers such as the low availability of trained OCD clinicians within existing generalist mental health care settings (e.g., community mental health centers, school-based mental health, integrated primary care).

This disadvantage is heightened when combined with the severity of a given case and the fact that children may only have access to medication alone or non-CBT therapy, or they may not have access to any treatment at all. Among those children and adolescents who do receive treatment, some do not respond to either psychotropic medications, traditional CBT, or both. Due to these factors, more attention has been given to identifying alternative, empirically supported treatment models centered on increasing the dosage of psychosocial treatment while also decreasing the duration (i.e., intensive therapy; Giridharan et al. 2023). Intensive treatment can be defined in various ways. Intensive outpatient programs are typically 5 days/week for 1–3 h/day. Partial hospitalization or day treatment programs are typically 5 days/week for 6 h/day. Residential day programs are 7 days/week with considerable treatment elements included during each day.

Among pediatric populations, there are several advantages of intensive treatment. Given the shorter time frame and concentration, intensive therapy may be more helpful for treatment-resistant patients or for those who simply have more severe symptoms, thus reducing functional impairment (Storch et al. 2007c). Prolonged sessions may allow for increased flexibility, opportunities for multiple exposures across contexts, and fewer distractions (Riise et al. 2018, Wolters et al. 2021). Moreover, motivation and focus may increase because the therapy is the primary life task (Foa & Steketee 1987). In further support of this approach, Storch et al. (2010) demonstrated that 3-week intensive treatment produced large effect sizes among both partial responders and

nonresponders to psychotropic treatment. Leonard et al. (2016) replicated these findings in a residential treatment setting. Whiteside & Jacobsen (2010) and Riise et al. (2018) demonstrated similarly positive results in a brief model in which patients completed a 4- or 5-day intensive treatment. However, intensive treatment may present its own barriers. The nature of intensive treatment can be time-consuming and may require removal from school and temporary relocation (Storch et al. 2007c). There may also be scheduling conflicts when accommodating caregivers' schedules (Riise et al. 2018, Whiteside & Jacobsen 2010).

## Family-Based Treatment

Pediatric OCD has been described as a "family-based illness" because the development and maintenance of pediatric OCD are often driven by a variety of parental and/or caregiver factors (Storch et al. 2007b). For many children, OCD symptoms and behaviors present at home and affect quality of life for both the child and family. As described in more detail above in the section titled Parental Treatment Components, the burgeoning evidence base for family-based treatment for OCD consists of CBT protocols in which treatment involves removing parental participation in OCD symptoms (namely, family accommodation) and playing the role of cotherapist (Freeman et al. 2003, 2014; Peris et al. 2017).

When developing, refining, and implementing pediatric OCD treatment, it is important to consider the reciprocal role of the family and child in the development and maintenance of symptoms, which is imperative to treatment outcome (Freeman & Garcia 2009). Several studies indicate that family functioning plays a significant role in symptom expression, and family accommodation is an important factor (Lebowitz et al. 2012). There is substantial evidence to suggest that higher levels of family accommodation are associated with OCD symptom severity (Piacentini et al. 2011, Storch et al. 2010). Additional factors, such as expressed emotion and familial dysfunction, can also have an impact on symptoms and treatment outcome (Peris & Miklowitz 2015).

The degree to which parents/caregivers are involved in treatment varies depending on delivery format. Differences in delivery models range from CBT augmented with parental involvement to exclusive parent-oriented treatment (Freeman et al. 2014, Lebowitz et al. 2020, Peris & Piacentini 2016). Many traditional models of pediatric OCD treatment consist of some parent participation; however, contemporary models have shifted to integrate substantial caregiver involvement. As described in more detail above in the section titled Core Treatment Components of Cognitive Behavioral Therapy for Obsessive–Compulsive Disorder, this treatment model involves parental/caregiver presence at all sessions, and instruction on OCD psychoeducation is directed jointly to parents/caregivers and children. Parents are also taught to be their child's coach (essentially the cotherapist) to help guide their child through treatment via exposures under supervision and corrective feedback of the therapist (Peris et al. 2017). Family accommodation is also explicitly targeted in family-based CBT; accommodating behaviors are addressed within the hierarchy and actively during in-session and out-of-session exposures. Lastly, parental factors such as awareness of possible co-occurring parental psychopathology and referrals for parent psychotherapy for their own mental health concerns are also addressed when necessary.

This format has been tested in several studies. In their investigation of family-based CBT, Storch and colleagues (2007c) adapted the POTS study (POTS Team 2004) to include parents in all sessions to help support generalization of treatment gains, reduce accommodation, serve as cotherapists to provide psychoeducation to the child, and implement contingency management strategies (e.g., rewards plan) to enhance treatment adherence. Among a sample of partial responders or nonresponders to medication, 54% of participants experienced a reduction in symptom severity at posttreatment and at 3-month follow-up. These results were replicated using telehealth (Storch et al. 2011) and when attempting to augment ERP with D-cycloserine (Storch et al. 2016).

Additional models of family-based CBT may include standard CBT augmented with family therapy. For example, positive family interaction therapy (PFIT) consists of biweekly, hourlong family therapy sessions in addition to weekly CBT for OCD; the family sessions are centered on addressing family dysfunction factors that can affect treatment outcomes (e.g., familial conflict, poor family cohesion, blame; Peris & Piacentini 2016). During these sessions, attunement to parent–child conflict, parental emotional regulation, and symptom accommodation is emphasized to promote family support and cohesion (Peris et al. 2017). Results showed that PFIT enhanced treatment outcomes—namely, reductions in symptom severity, OCD-related impairment, and family conflict—compared with standard, weekly individual CBT (Peris et al. 2017).

Parent-only treatment models have also been developed. Lebowitz and colleagues (2020) developed the Supporting Parents of Anxious Childhood Emotions (SPACE) treatment to exclusively address family accommodation by parents/caregivers. The focal point of the treatment is parent behavior change, where the changes (reducing family accommodation) are transparently made and shared with the child (via a written letter), followed by consistent parental follow-through and support from family members. SPACE demonstrates preliminary empirical support. In a trial of 124 children with anxiety disorders, which included 17 children with OCD, SPACE was noninferior to standard CBT for anxiety and was associated with greater reductions in family accommodation (Lebowitz et al. 2020). The last two authors of this review (W.K.G. and E.A.S.) have completed a trial ( $n = 68$ ) demonstrating comparable efficacy for standard and lite versions of SPACE in a sample enriched with kids with OCD.

### Technology-Assisted Treatment

Modern investigations of treatment accessibility, dissemination, and adherence have resulted in increased interest in technology-assisted treatment. A number of studies suggest that CBT delivered over videoconference (VTC) or telephone is as effective as standard in-person treatment (Comer et al. 2017, Duncan et al. 2014, Nelson & Patton 2016). Treatment models involving VTC have shown noninferiority compared with standard treatment for both children and adolescents (Comer et al. 2017, Storch et al. 2011). Following the worldwide disruption of in-person services during the COVID-19 pandemic, the need for technology-assisted treatment increased exponentially (Conzelmann et al. 2022, Gittins Stone et al. 2023, Revet et al. 2023). As such, the need for empirically supported video-based treatment increased as well.

VTC treatment offers several advantages, such as increased accessibility and session attendance, insight into the home environment, and caregiver participation across the household. In a waitlist RCT of family-based OCD, Storch and colleagues (2011) found that participants in the web-camera condition exhibited reduced OCD symptoms and functional impairment and met remission criteria at greater levels compared with those in the waitlist condition. Family-based CBT for pediatric OCD has also been found to demonstrate efficacy and feasibility in outpatient settings (Gittins Stone et al. 2023).

Recent technology-assisted treatment studies have also widened to include Internet-delivered CBT (iCBT), where the entirety of treatment is conducted on an online platform. A growing body of evidence for iCBT for pediatric OCD suggests that the treatment model is a promising avenue (Lenhard et al. 2014, 2017). In a pilot trial of iCBT for pediatric OCD, Lenhard and colleagues (2014) found that clinician-rated OCD symptoms improved from pre- to posttreatment: Nearly 50% of patients met remission criteria at the posttreatment assessment. The authors also investigated the implications of iCBT for adolescents with OCD using qualitative methods. Participants endorsed themes such as self-efficacy, flexibility, support, and normalization following completion of the intervention (Lenhard et al. 2014). After the encouraging findings from the pilot trial, Lenhard et al. (2017) conducted an RCT that compared iCBT against a waitlist control.

Results demonstrated that iCBT was superior to waitlist: iCBT participants experienced further improvements from posttreatment to 3-month follow-up.

## Treatment for Young Children

Symptom onset for pediatric OCD often develops at a young age, and it is imperative that treatment take a developmentally appropriate approach (Freeman et al. 2014). Compared with older children and adolescents, young children with OCD present with unique features that must be considered, such as developmental differences, family context, and the embeddedness of the child within the family system (Freeman et al. 2003, 2014). As such, pediatric OCD treatment for young children (i.e., children younger than 9 years old) typically follows a behavioral approach that incorporates contingency management techniques and focuses on reductions in parental accommodation. In the POTS Jr study, which demonstrated superiority of CBT to relaxation training in younger children (aged 5–8) with OCD, Freeman and colleagues (2014) emphasized the need to focus on parent-based skills and simplification of CBT skills during patient psychoeducation. Parents were also involved in all phases of treatment, and OCD was “externalized” (Freeman et al. 2014). Additional empirical support for CBT in young children has been published (Lewin et al. 2014).

## FUTURE DIRECTIONS

### Dissemination and Implementation

As articulated throughout this review and described elsewhere (e.g., Freeman et al. 2018), there is clearly strong empirical evidence for CBT with ERP in pediatric OCD patients. However, it seems that the translation of such an evidence base to clinical practice outside research settings is sometimes challenging, as research reveals that therapists often use other techniques with less support for treating psychiatric concerns in youth, including OCD (Reid et al. 2018). More specifically, in a survey of 257 private practice clinicians, practitioners reported using cognitive restructuring and relaxation techniques significantly more than exposure when treating anxious children and adolescents; in-session exposures were used only 30% of the time in treatment for youth with OCD (Reid et al. 2018). Exposures were implemented significantly more by clinicians with specialized ERP training and fewer negative beliefs related to ERP treatment. Although recent survey research among practicing clinicians has revealed that adverse events associated with exposures are almost nil (Schneider et al. 2020), several studies have demonstrated that negative clinician beliefs including perceived patient intolerability of exposures and excessive risk related to ERP treatment were associated with not using ERP (Deacon et al. 2013, Lewis et al. 2020); unfortunately, such misguided beliefs continue to proliferate to this day (e.g., Pagsberg et al. 2022).

Therefore, to increase the dissemination and implementation of ERP, it is imperative that clinicians receive accurate information about ERP and quality training in ERP techniques because these factors have been associated with improved attitudes toward ERP treatment (Deacon et al. 2013, Farrell et al. 2016). The International OCD Foundation’s Behavior Therapy Training Institute, which trains clinicians in CBT for OCD and offers follow-up consultation, is one promising avenue that can provide therapists with accurate information related to ERP and can help increase ERP dissemination. In a review of the training program, Reese et al. (2016) found that engaging in follow-up consultation with CBT for OCD experts and peers was related to greater skill use by participating clinicians. Additionally, to increase the availability of ERP providers, it will be important to train clinicians across diverse disciplines and settings. To help with these efforts, an emphasis on CBT training in clinical and counseling psychology programs may be a crucial component (Klepac et al. 2012).

## Recruiting Diverse Samples

In future pediatric CBT for OCD research, an emphasis should be placed on recruiting culturally diverse samples since the largest treatment trials in this area of research have mostly included middle-class, white participants (Williams et al. 2010). To produce research more applicable to our multiculturally diverse world, it is crucial to understand the variables associated with the underrepresentation of ethnic minority individuals in both research trials and clinical services (Fernández de la Cruz et al. 2015). Several factors that may lead to this underrepresentation include referral barriers, inaccurate diagnoses, and negative views of mental health care or clinical research by ethnic minority individuals. To recruit ethnic minority participants, researchers should use a variety of advertisement styles (e.g., fliers that feature racially and ethnically diverse images, bus ads, online advertising), engage in community outreach work to promote the study, and offer adequate participant compensation for study time and travel expenses (Williams et al. 2012).

Additionally, few studies to date have examined possible differences in clinical presentation and treatment outcomes among culturally diverse individuals. However, one such study in this area found that, of patients treated at a pediatric OCD clinic, no differences in treatment outcomes were observed between white and nonwhite patients; both groups demonstrated similar clinical presentations (Fernández de la Cruz et al. 2015). That said, the nonwhite participants consisted of youth from a variety of minority groups, so conclusions related to specific ethnic groups cannot be assumed. Further, Williams & Jahn (2017) examined sociocultural factors that may influence treatment of African American children and adolescents with OCD. They indicated that past racism in medical research, mental health stigma, and financial difficulties are potential factors that may affect engagement in treatment. Future work should continue to address the lack of diversity in pediatric research samples and further explore the extent to which diverse cultural backgrounds or other individual difference variables may influence pediatric OCD presentations. Such research will undoubtedly help reduce culturally based health care disparities and provide clinicians with more information on how they may need to adapt treatment based on different cultural variables (Williams et al. 2020).

## Innovation in Delivery of Treatment

To improve access to and efficiency of CBT treatment, several studies have begun to examine digital mental health interventions for youth (Khanna & Carper 2022, Lenhard et al. 2017, Pramana et al. 2014). As an adjunct to CBT treatment, several mobile apps with the ability to monitor homework compliance and guide exposure implementation have demonstrated preliminary effectiveness for childhood anxiety disorders (Pramana et al. 2014, Silk et al. 2020). These mobile apps may also be helpful for pediatric OCD. In a study that examined a therapist-guided iCBT intervention for adolescents with OCD, a mobile app was used to increase adolescent and parent interaction with therapeutic content, set reminders for exposures, update hierarchies, and communicate with the therapist (Lenhard et al. 2017). Mobile apps could also be used to improve assessment of OCD symptoms through ecological momentary assessment (Rupp et al. 2019). Although many mobile treatment applications have been developed, few have been systematically studied; thus, more research is needed to determine their effectiveness and transportability. Further, it is important to continue developing partnerships with industries that create mobile apps to facilitate the ongoing development and maintenance of these platforms (Khanna & Carper 2022).

Virtual reality technologies are another treatment delivery modality that has exciting future implications. Virtual environments can provide therapists with safe, repeatable, and diversifiable exposure situations that could enhance CBT treatment for certain youth (Parsons et al. 2017). Although there is more evidence for the effectiveness of virtual reality exposure therapy (VRET)

in adults with anxiety disorders (Kothgassner & Felthofer 2021), several studies have also shown preliminary evidence for the use of VRET for children with specific phobias (Farrell et al. 2021, Gutiérrez-Maldonado et al. 2009). These virtual reality technologies could also be adapted for the treatment of youth with OCD. However, future research is needed to understand the most effective way to complete exposure trials using this technology. Additionally, challenges associated with establishing reliability and validity of virtual reality assessments and interventions have been noted and will also require careful attention in future research (Parsons et al. 2017).

## **Treatment Personalization**

A variety of treatment levels can be offered to youth with OCD. Some children and adolescents may benefit from short-term, targeted outpatient treatment, while others may need a longer course of CBT. There are also intensive treatment options for severe, treatment-resistant cases, such as intensive outpatient treatment, partial hospitalization, and residential treatment (Giridharan et al. 2023). Few studies have examined specific patient characteristics (i.e., moderating variables) that indicate who may benefit the most from which intensity of treatment. Instead, therapists are typically tasked with using data from clinical assessment of several factors, including treatment history, impairment, and complexity, to make a clinical judgment regarding the most appropriate treatment level. Self-help interventions (e.g., bibliotherapy), stepped-care models, Internet-delivered interventions, and telehealth CBT are other treatment modalities that merit further evaluation to determine which youth may benefit most from these treatment delivery options.

In an area demonstrating particular promise, several studies have examined stepped-care models to determine how to approach different treatment levels (Farrell et al. 2023, Franklin et al. 2011, Jensen et al. 2020, Skarphedinsson et al. 2015). For example, in youth with a partial response to SSRIs, the addition of CBT led to a greater response rate than medication management alone, while the addition of instructions in CBT procedures plus medication management did not lead to a greater response (Franklin et al. 2011). Additionally, Jensen et al. (2020) demonstrated that to reach optimal long-term treatment gains, further treatment should be considered for adolescents with contamination OCD and anxiety symptoms who have symptom levels just below the cutoff score for treatment response. Another study found that the addition of an SSRI rather than continued CBT may be more beneficial for children and adolescents with OCD and a comorbid tic disorder who do not respond to an initial course of CBT treatment (Skarphedinsson et al. 2015). Finally, Farrell et al. (2023) proposed a staged-care model of CBT with ERP in which the level of care is informed by the patient's OCD severity, comorbidities, and prior treatment history.

In another illuminating line of research seeking to understand differences among treatment modalities, Wiese et al. (2022) examined clinician perceptions of patient characteristics that may influence the feasibility of delivering telehealth relative to in-person ERP treatment for individuals with OCD. OCD providers reported that telehealth ERP was less feasible when delivering treatment to patients under 13 years old and to patients with more severe OCD symptoms. Interfering treatment factors, such as self-reassurance and avoidance, were also reported to be more difficult to identify and address in telehealth ERP. Other studies have examined a stepped-care approach of iCBT and in-person CBT. In youth with OCD, Aspvall et al. (2021) found no significant differences in OCD symptoms at 6-month follow-up between iCBT followed by in-person CBT if necessary relative to in-person CBT alone. Further, the long-term effects of treatment at 2-year follow-up were similar between groups: The response rate was 66% in the stepped-care group compared with 71% for in-person CBT (Lauri et al. 2023). Future research should expand on these studies to help clinicians most optimally match a particular treatment modality and level of intensity to each unique presentation of pediatric OCD.

## Neuromodulation in Youth

Future research should continue to examine neuromodulation approaches, such as deep transcranial magnetic stimulation (DTMS) and potentially DBS, for children and adolescents with refractory OCD. These brain-circuit-based therapies have demonstrated preliminary efficacy in adults with OCD (Gadot et al. 2022, Lusicic et al. 2018); however, they have not yet been studied in youth. DTMS is a noninvasive procedure in which a coil that emits electromagnetic pulses is placed over the scalp to stimulate neuronal activity in certain areas of the brain (McCathern et al. 2020). Since dysfunction in CSTC circuits has been implicated in adult and pediatric OCD, similar neural targets that have been identified in adult studies, such as the medial prefrontal cortex and anterior cingulate cortex, may also be effective for youth (Lusicic et al. 2018). On balance, results among adults are modest (Carmi et al. 2019), and the treatment is intensive (daily sessions for 6 weeks) and has not been compared with other intensive treatment models.

As briefly described above in the section titled Neurobiological Factors, DBS is a surgical treatment option in which electrodes are implanted in target areas of the CSTC network to elicit changes in brain communication. For adults with treatment-refractory OCD, Gadot et al. (2022) found a DBS response rate of 66%, and in up to 87% of treatment-refractory OCD cases, DBS can be more cost-effective than treatment as usual (Najera et al. 2022). For adolescents with severe OCD who do not respond to CBT or medication, DBS may be a potential future treatment option; however, several ethical implications still need to be addressed. For instance, there are potential concerns associated with properly informing adolescents and caregivers about the invasive nature of the procedure, the long-term effects of the procedure on developing youth, and the definition of “refractory” OCD in youth (Muñoz et al. 2021). Future studies will undoubtedly need to further examine and address these ethical concerns. In one preliminary effort toward that end, a survey study of 279 parents that examined vignettes of adolescents with treatment-resistant OCD revealed that parents were willing to consider DBS as a possible treatment option, especially if they had past familiarity with DBS (Storch et al. 2020).

## CONCLUSION

OCD is a debilitating psychiatric condition that often manifests early in life and tends to worsen over time without intervention. Hence, the study of this condition in youth and development of efficacious treatments for pediatric OCD represent important lines of work. Fortunately, CBT with ERP, along with SSRI-based pharmacological interventions, clearly demonstrates efficacy for the treatment of children and adolescents with OCD (Freeman et al. 2018, Öst et al. 2016). However, as highlighted in this review, to effectively assess, conceptualize, and treat pediatric OCD from a CBT framework, several important considerations and developmentally appropriate adaptations are necessary. One consideration that stands out as especially paramount is the role of the family in the treatment of pediatric OCD, in terms of both vulnerability (i.e., family accommodation) and resilience (i.e., support and encouragement for necessary ERP practice) factors.

As treatment development efforts in the realm of pediatric OCD continue to advance to include a wide array of modalities, including technology-assisted models, family-based treatments, and stepped-care approaches, feasibility, dissemination, and implementation research efforts will need to keep pace. This review also highlights several key directions for future research, including further elucidating individual difference variables that can improve the process of matching patients to treatments (i.e., precision medicine), increasing access to clinical services and participation in research for individuals from culturally diverse backgrounds, and development of neurobiologically based treatment approaches for refractory presentations (e.g., DBS, DTMS). Continued research efforts such as those described in this review, along with a deliberate focus on

understanding OCD from a developmental perspective, will hopefully improve access to gold standard interventions for children and adolescents suffering from OCD.

## SUMMARY POINTS

1. Obsessive–compulsive disorder (OCD) is a psychiatric disorder that often manifests early in life and leads to functional impairment and decreased quality of life.
2. Cognitive behavioral therapy (CBT) with exposure and response prevention (ERP), along with selective serotonin reuptake inhibitor (SSRI)-based pharmacological interventions, demonstrates efficacy for the treatment of children and adolescents with OCD.
3. The child's family plays an important role in the treatment of pediatric OCD, in terms of both helping to reduce family accommodation and supporting engagement in treatment.
4. There are several different treatment delivery formats, such as intensive treatment, family-based treatment, and technology-assisted treatment, that can be effective for treatment of youth OCD.

## FUTURE ISSUES

1. Increase the dissemination and implementation of CBT with ERP.
2. Study individual difference variables that may improve the process of matching patients to the most effective treatment delivery format.
3. Increase access to clinical services and participation in research for individuals from culturally diverse backgrounds.

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