

Chapter One

What is Obsessive-Compulsive Disorder?

Caleb W. Lack & Sean McMillan

Obsessive-compulsive disorder (OCD) is a mental disorder that is primarily diagnosed based upon the presence of *obsessions* and/or *compulsions* (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; American Psychiatric Association, 2013). The *DSM-5* defines obsessions as “recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted” and compulsions as “repetitive behaviors or mental acts that an individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly” (APA, 2013, p. 237).

Far from being odd or unusual experiences, most people have experienced non-clinical levels of obsessions and compulsions at some point in their lives (Abramowitz et al., 2014). Obsessing over an upcoming event (e.g., an exam), worrying that you forgot to lock the front door or turn off the stove before leaving for a trip, always having your desk organized in a specific way, and performing superstitious behaviors (e.g., always wearing a particular sports jersey on days that your favorite sports team plays) are examples of some minor obsessions and compulsions. Insignificant obsessions and compulsions are harmless and can actually prove to be beneficial to individuals. Ritualistic behaviors (i.e., compulsions), such as taking time to organize one’s desk at the start or end of a workday can create a sense of relief and reduce anxiety. This may be why routines and rituals are extremely common in the population, from sleeping in the same position every night to buttoning your shirt in a particular fashion (Kanner, 2005). Much like many other cognitions and behaviors, obsessions and compulsions only become problematic when they are carried out excessively, irrationally, for unreasonable amounts of time, to a level that causes significant distress to the person, or when they hinder daily living (Lack, 2013).

This chapter will focus on defining obsessions and compulsions, the disorder that arises from their presence, how that disorder has changed across time in diagnostic nosologies, controversies over its classification, epidemiology, and a brief overview of the problems it can cause for individuals.

A Brief History of OCD

References to symptoms of what we now call obsessive-compulsive disorder date back hundreds of years to the 17th century. From Lady Macbeth's excessive handwashing to Martin Luther's excessive scrupulosity, case studies and reports from history make it clear that OCD has been with the human species for a very long time (Krochmalik & Menzies, 2003). Attempts at systematic research on OCD began in the early 1800s, when it was often considered a form of insanity, although this gradually developed into "insanity with insight" as it was acknowledged that persons suffering from OCD did not have the disconnect from reality seen in psychosis (Salzman & Thaler, 1981). A more contemporary understanding began by the early 19th century, with several psychological frameworks for understanding why people had OCD competing for attention. Sigmund Freud's hypotheses regarding obsessional thoughts battled Pierre Janet's views of abnormal personality in the minds of clinicians (Boileau, 2003). Although influencing later conceptions, these have fallen by the wayside as new perspectives on OCD have developed in the last century, particularly the criteria as outlined in two distinct diagnostic manuals.

Classification of OCD in the DSM

As diagnostic nosologies for mental disorders were developed in the 20th century, two systems rose to prominence. The Diagnostic and Statistical Manual for Mental Disorders, published by the American Psychiatric Association, is currently the most widely-used manual by mental health clinicians to define the symptoms of what are variously called mental disorders, mental illness, or psychopathology, including OCD, in the United States. It is currently on its fifth revision, which contained some major changes in how OCD is conceptualized compared to prior versions.

In the DSM-IV-TR (APA, 2000), OCD was classified as an anxiety disorder (as it was in all prior versions). In the DSM-5 (APA, 2013), OCD has been removed from the anxiety disorders and placed alongside body dysmorphic disorder, trichotillomania or hair-pulling, hoarding, and excoriation or skin-picking in a new section titled Obsessive-Compulsive and Related Disorders. The DSM-5 notes, however, that the Obsessive-Compulsive and Related Disorders section was purposefully placed right after the Anxiety Disorders section because "there are close relationships between the anxiety disorders and some of the obsessive-compulsive and related disorders (e.g., OCD)" (American Psychiatric Association, 2013). Even with that in consideration, it was and remains a highly controversial decision to remove OCD from the Anxiety Disorders and create a new category that it apparently exemplifies.

To illustrate the controversy, an international survey involving 187 authors of OCD research articles was conducted to determine how the authors felt about OCD being relocated from the Anxiety Disorders section to a different section (Mataix-Cols et al., 2007). Roughly 60% of those who answered the survey endorsed OCD being moved for the DSM-5. Survey respondents comprising the 60% most commonly reported basing their decision on the finding that obsessions and compulsions, instead of anxiety, make up the central traits of OCD. Respondents that opposed the move frequently stated that they arrived at their opinion based on the evidence that OCD and the other anxiety disorders benefit from comparable treatment methods and typically are comorbid. Intriguingly, there was a significant difference in opinion between psychiatrists (where 75% supported the change) and other health professionals (where only 40–45% supported the change). Although covering the complete controversy and issues surrounding OCD's classification is outside of the scope of this chapter, interested readers can refer to Leckman et al. (2010), Stein et al. (2010), and Storch et al. (2008) for differing perspectives on this issue and a review of the literature.

A section change was not the only OCD-related change given consideration when the DSM-5 was being developed. Changing of the wording in the diagnostic criteria for OCD was also debated and, in fact, the DSM-5 has different wording for OCD diagnostic criteria than the DSM-IV-TR. For example, in item 1 under Obsessions the word “impulses” (DSM-IV-TR) was changed to “urges” (DSM-5). Although “impulse” and “urge” both effectively represent the seemingly uncontrollable drive associated with obsessions, “impulse” obliquely makes reference to impulse control disorders, which may confuse or influence clinicians and lead them to make an inaccurate diagnosis (Leckman et al., 2010). Other wording changes were also made, but do not significantly impact the diagnosis. The differences in wording can be seen in the following table, which contains the diagnostic criteria from both the DSM-IV-TR and DSM-5.

DSM-IV-TR Diagnostic Criteria for Obsessive-Compulsive Disorder

A. Either obsessions or compulsions:

Obsessions as defined by (1), (2), (3), and (4):

- (1) recurrent and persistent thoughts, impulses, or images that are experienced, at some time during the disturbance, as intrusive and inappropriate and that cause marked anxiety or distress
- (2) the thoughts, impulses, or images are not simply excessive worries about real-life problems
- (3) the person attempts to ignore or suppress such thoughts, impulses, or images, or to neutralize them with some other thought or action

- (4) the person recognizes that the obsessional thoughts, impulses, or images are a product of his or her own mind (not imposed from without as in thought insertion)

Compulsions as defined by (1) and (2):

- (1) repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the person feels driven to perform in response to an obsession, or according to rules that must be applied rigidly
 - (2) the behaviors or mental acts are aimed at preventing or reducing distress or preventing some dreaded event or situation; however, these behaviors or mental acts either are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive
- B. At some point during the course of the disorder, the person has recognized that the obsessions or compulsions are excessive or unreasonable. **Note:** This does not apply to children.
 - C. The obsessions or compulsions cause marked distress, are time consuming (take more than 1 hour a day), or significantly interfere with the person's normal routine, occupational (or academic) functioning, or usual social activities or relationships.
 - D. If another Axis I disorder is present, the content of the obsessions or compulsions is not restricted to it (e.g., preoccupation with food in the presence of an Eating Disorder; hair pulling in the presence of Trichotillomania; concern with appearance in the presence of Body Dysmorphic Disorder; preoccupation with drugs in the presence of a Substance Abuse Disorder; preoccupation with having a serious illness in the presence of Hypochondriasis; preoccupation with sexual urges or fantasies in the presence of a Paraphilia; or guilty ruminations in the presence of Major Depressive Disorder).
 - E. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

Specify if:

With poor insight: if, for most of the time during the current episode, the person does not recognize that the obsessions and compulsions are excessive or unreasonable

DSM-5 Diagnostic Criteria for Obsessive-Compulsive Disorder

A. Presence of obsessions, compulsions, or both:

Obsessions are defined by (1) and (2):

- (1) Recurrent and persistent thoughts, urges, or images that are experienced, at some time during the disturbance, as intrusive and unwanted, and that in most individuals cause marked anxiety or distress.
- (2) The individual attempts to ignore or suppress such thoughts, urges, or images, or to neutralize them with some other thought or action (i.e., by performing a compulsion).

Compulsions are defined by (1) and (2):

- (1) Repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly.
- (2) The behaviors or mental acts are aimed at preventing or reducing anxiety or distress, or preventing some dreaded event or situation; however, these behaviors or mental acts are not connected in a realistic way with what they are designed to neutralize or prevent, or are clearly excessive.

Note: Young children may not be able to articulate the aims of these behaviors or mental acts.

- B. The obsessions or compulsions are time-consuming (e.g., take more than 1 hour per day) or cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- C. The obsessive-compulsive symptoms are not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.
- D. The disturbance is not better explained by the symptoms of another mental disorder (e.g., excessive worries, as in generalized anxiety disorder; preoccupation with appearance, as in body dysmorphic disorder; difficulty discarding or parting with possessions, as in hoarding disorder; hair pulling, as in trichotillomania [hair-pulling disorder]; skin picking, as in excoriation [skin-picking] disorder; stereotypies, as in stereotypic movement disorder; ritualized eating behavior, as in eating disorders; preoccupation with substances or gambling, as in substance-related and addictive disorders; preoccupation with having an illness, as in illness anxiety disorder; sexual urges or fantasies, as in paraphilic disorders;

impulses, as in disruptive, impulse-control, and conduct disorders; guilty ruminations, as in major depressive disorder; thought insertion or delusional preoccupations, as in schizophrenia spectrum and other psychotic disorders; or repetitive patterns of behavior, as in autism spectrum disorder).

Specify if:

With good or fair insight: The individual recognizes that obsessive-compulsive disorder beliefs are definitely or probably not true or that they may or may not be true.

With poor insight: The individual thinks obsessive-compulsive disorder beliefs are probably true.

With absent insight/delusional beliefs: The individual is completely convinced that obsessive-compulsive disorder beliefs are true.

Specify if:

Tic-related: The individual has a current or past history of a tic disorder.

Classification of OCD in the ICD

The next most popular diagnostic manual that clinicians use, both outside and inside the U.S., is the International Statistical Classification of Diseases and Related Health Problems (ICD), currently in its tenth revision. In the ICD-10, OCD is located in the Neurotic, Stress-related and Somatoform Disorders section, which is also where anxiety disorders are. Interestingly, OCD is actually separated from anxiety disorders and given its own subheading (World Health Organization, 2010), dissimilar to DSM-IV but consistent with its separation in DSM-5. However, they are closely grouped in the ICD-10 and it would be easy to miss this distinction. Another noticeable difference is in the definitions of obsessions and compulsions.

In ICD-10, obsessions are described as “ideas, images, or impulses that enter the patient's mind again and again in a stereotyped form. They are almost invariably distressing and the patient often tries, unsuccessfully, to resist them. They are, however, recognized as his or her own thoughts, even though they are involuntary and often repugnant (World Health Organization, 2010).” In DSM-5, obsessions are defined as “recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted” (American Psychiatric Association, 2013). In ICD-10, compulsions are described as “stereotyped behaviours that are

repeated again and again. They are not inherently enjoyable, nor do they result in the completion of inherently useful tasks. Their function is to prevent some objectively unlikely event, often involving harm to or caused by the patient, which he or she fears might otherwise occur. Usually, this behaviour is recognized by the patient as pointless or ineffectual and repeated attempts are made to resist. Anxiety is almost invariably present. If compulsive acts are resisted the anxiety gets worse” (World Health Organization, 2010). In DSM-5, compulsions are defined as “repetitive behaviors or mental acts that an individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly” (American Psychiatric Association, 2013).

Dissimilar to the ICD-10, the DSM-5 directly declares that there is an interactional relationship between obsessions and compulsions. That is, as presented in the DSM-5, obsessions are anxiety provoking and compulsions are performed to decrease stress and avoid an imagined unpleasant outcome (e.g., house burning down from leaving the stove on) (Leckman et al., 2010). Although the relief is typically brief in duration, the individual engages in one or more compulsions to alleviate their anxiety. The ICD-10 proclaims that “Underlying the overt behaviour is a fear, usually of danger either to or caused by the patient, and the ritual is an ineffectual or symbolic attempt to avert that danger” (World Health Organization, 2010).” This references obsessions but does not by name refer to obsessions, which contrasts the DSM-5. Unlike the DSM-IV-TR, the ICD-10 specifically notes that obsessions and compulsions are not enjoyable for the individual experiencing them (Leckman et al., 2010). The changes that came with the DSM-5 altered this disparity, however, and the DSM-5 mentions that obsessions are “intrusive and unwanted” (American Psychiatric Association, 2013).

Common Types of Obsessions and Compulsions

Contrary to what some may think, the content and purpose of obsessions and compulsions (O/C) seems to differ little between clinical and non-clinical samples (Garcia-Soriano et al., 2011). Research has found that while compulsions are not as likely to be overt in non-clinical populations, people without OCD nonetheless engage in anxiety-reducing or anxiety-neutralizing behaviors (i.e., compulsions) when they have obsessive thoughts (Berman et al., 2010). Even the most commonly reported O/C, outlined below, are similar between those with and without OCD (Abramowitz et al., 2014).

Obsessions can be impulses (e.g., desire to loudly cuss during a funeral), wishes (e.g., wishing someone to die), images (e.g., imagining your house setting on fire because the oven was left on), or doubts (e.g., thinking that you forgot to lock a door) that repeatedly come to mind at a level beyond what would be considered

typical worrying over genuine life problems (Challis, Pelling, & Lack, 2008). Most often, individuals with obsessions know that the intrusive thoughts are abnormal, which only increases their anxiety. Obsessions may focus on a variety of themes, including contamination (i.e., germs and sickness), aggression and violence (either towards others or self-harm), sexuality, orderliness, religiosity, and extreme uncertainty (e.g., fear of forgetting to lock the door or make sure the oven is off before leaving home).

Most Common Obsessions Seen in OCD

<i>Type of Obsession</i>	<i>Examples</i>
Contamination	Bodily fluids, disease, germs, dirt, chemicals, environmental contaminants
Religious Obsessions	Blasphemy or offending God, high concern about morality and what is right and wrong.
Superstitious ideas	Lucky numbers, colors, words
Perfectionism	Evenness and exactness, “needing” to know or remember, fear of forgetting or losing something
Harm	Fear of hurting others through carelessness, fear of being responsible for something terrible happening
Losing Control	Fear of acting on an impulse to harm self or others, fear or unpleasant mental images, fear of saying offending things to others
Unwanted Sexual Thoughts	Forbidden or “perverse” sexual thoughts, images, or impulses; obsessive thoughts about homosexuality; obsessions involving children or incest; obsessions about aggressive sexual behavior

Compulsions, on the other hand, are repeated actions that are often performed as a means to reduce the anxiety and distress caused by an obsession (Challis, Pelling, & Lack, 2008). Obsessions almost always make persons with OCD highly anxious or distressed. Engaging in compulsions can serve to reduce the anxiety caused by obsessions, or sometimes to prevent the anxiety before it occurs; however, the anxiety reduction does not usually last for very long (for a more detailed explanation, see the following chapter on the etiology of OCD). While compulsions are volitional, it does not feel that way to people with OCD. Instead, they believe that something bad will happen if they do not engage in a compulsion (e.g., a loved one will die or they will catch a terrible disease). Compulsive

behaviors may be performed from anywhere from a few times a day to several hundred times a day, depending on the severity of one's OCD (Abramowitz, Taylor, & McKay, 2009).

Most Common Compulsions Seen in OCD

<i>Type of Compulsion</i>	<i>Examples</i>
Checking	Making sure that you did not (or will not) harm yourself or others, or that you did not make a mistake, or that nothing “terrible” happened
Repeating	Repeating things in multiples or a certain number of times, certain body movements, rereading or rewriting
Washing / Cleaning	Washing hands excessively, excessive showering or bathing, cleaning outside the norm
Mental compulsions	Cancelling out bad thoughts with good ones, counting while walking or performing some task, prayer to prevent something terrible from happening
Hoarding	Collecting items due to compulsions
Ordering and Arranging	Putting things in “proper” order or until it “feels right”

Epidemiological Aspects of OCD

In the U.S., the lifetime prevalence rate of OCD is estimated at 2.3% in adults (Kessler et al., 2005) and around 1-2.3% in children and adolescents under 18 (Zohar, 1999). There are also a fairly substantial number of “sub-clinical” cases of OCD, around 5% of the population (Ruscio et al., 2010), where symptoms are either not disturbing or not disruptive enough to meet full criteria and yet are still impairing to some degree. There is strong evidence that cultural differences do not play a prominent role in presence of OCD, with research showing few epidemiological differences across different countries (Fontenelle et al., 2004) and even between European and Asian populations (Matsunga, 2008). There are, however, cultural influences on symptom expression.

While OCD is equally present in males and females in adulthood, the disorder is heavily male in pediatric patients (Geller, 2006). There are some differences in comorbidity as well. Among men, hoarding symptoms are most often associated with generalized anxiety disorder (GAD) and tic disorders, but in women social

anxiety, post-traumatic stress disorder, body dysmorphic disorder, nail biting, and skin picking are more often observed (Kessler et al., 2005; Torres et al. 2006).

Presentation of OCD symptoms is generally the same in children and adults (Stewart et al., 2008). Unlike many adults, though, younger children will not be able to recognize that their obsessions and compulsions are both unnecessary (e.g., you don't really need to wash your hands) and extreme (e.g., washing hands for 15-20 seconds is fine, but 5 minutes in scalding water is too much) in nature. In young children, compulsions often occur without the patient being able to report their obsessions, while adolescents are often able to report multiple obsessions and compulsions. Children and adolescents are also more likely to include family members in their rituals and can be highly demanding of adherence to rituals and rules, leading to disruptive and oppositional behavior. As such, youth with OCD are generally more impaired than adults with the same type of symptoms (Piacentini et al., 2007).

Up to 75% of persons with OCD also present with comorbid disorders (Kessler et al., 2005). The most common in pediatric cases are ADHD, disruptive behavior disorders, major depression, and other anxiety disorders (Geller et al., 1996). In adults, the most prevalent comorbidities are social anxiety, major depression, and alcohol abuse (Torres et al., 2006). Interestingly, the presence of comorbid diagnoses predict quality of life (QoL) more so than OCD severity itself in both children (Lack et al., 2009) and adults (Fontenelle et al., 2010). Different primary O/C are also associated with certain patterns of comorbidity, in both adults and youth (De Mathis et al., 2006). Primary symmetry/ordering symptoms are often seen with comorbid tics, bipolar disorder, obsessive-compulsive personality disorder, panic disorder, and agoraphobia, while those with contamination/cleaning symptoms are more likely to be diagnosed with an eating disorder. Those with hoarding cluster symptoms, on the other hand, are especially likely to be diagnosed with personality disorders, particularly Cluster C disorders.

Psychological Assessment Measures for OCD

There are multiple measures available to help clinicians diagnose OCD symptomatology in adults and children. Some frequently used adult self-report measures are the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), Padua Inventory-Revised (PI-R), and Obsessive Compulsive Inventory (OCI). Some commonly used self-report measures given to children are the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS), and Children's Florida Obsessive Compulsive Inventory (C-FOCI) (see Storch, Benito, & Goodman, 2011 for a review). These measures inform clinicians about the level of OCD symptoms present and how much distress they cause a client on a daily basis. The aforementioned psychological assessments can help a clinician determine what

type of treatment(s) would best serve a client and how often the client should receive therapy and/or medication.

Impairment Issues Related to OCD

Most individuals with OCD experience both obsessions and compulsions (American Psychiatric Association, 2013). People with OCD (roughly 2-3% of the general population) usually spend a large amount of time (usually more than one hour) each day performing their ritualized behavior(s) and thinking obsessively (Challis, Pelling, & Lack, 2008). The obsessions and compulsions make even the easiest of daily chores or activities time-consuming and stressful. Individuals with OCD spend a great deal of time carrying out their compulsions. Specifically, obsessions and compulsions are considered clinically significant when they are performed for more than one hour each day (American Psychiatric Association, 2013).

Almost all adults and children with OCD report that their obsessions cause them significant distress and anxiety, as opposed to similar, intrusive thoughts in persons without OCD (Subramaniam et al., 2013). In terms of quality of life (QoL), persons with OCD report a pervasive decrease compared to controls. Youth show problematic peer relations, academic difficulties, and participate in fewer recreational activities than matched peers (Lack et al., 2009). Overall, there is a lower QoL in pediatric females than males, but in adults similar disruptions are reported. When compared to other anxiety disorders and unipolar mood disorders, a person with OCD is less likely to be married, more likely to be unemployed, and more likely to report impaired social and occupational functioning (Macy et al., 2013).

Daily, there are a number of problems that people with OCD face. One example is the avoidance of situations in which the objects of the obsessions are present. For example, a person may avoid using public restrooms or shaking hands with people because doing so will trigger their contamination obsession, which will lead to them having to do a cleansing compulsion. Some people will not leave their homes because that is the only way to avoid objects and situations that will trigger their obsessions. Frequent doctor visits may also occur because they fear that something is wrong with them physically, just like a hypochondriac would feel. Feelings of guilt can also be present, along with disrupted sleep patterns and extreme feelings of responsibility. Self-medication may also be present in adults, with alcohol and sedatives the most often abused substances (Fals-Stewart & Angarano, 1994).

Conclusions

The current outlook on OCD is much more optimistic than it was in the past, when prognosis for OCD was bleak and understanding of it was poor (Franklin & Foa, 2008). Three decades ago, OCD was considered to be a permanent, untreatable mental disorder, as there were no effective medications or therapeutic methods for this disorder at that time. Over the last thirty years, our understanding of both basic aspects of OCD and treatment methods have progressed and OCD is now viewed as a treatable condition. A variety of empirically supported therapeutic methods and medication are available for individuals with OCD. With the proper treatment due to our increased understanding, people can learn to live with and reduce their OCD symptoms.

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Chapter Five

A Review of Cognitive-Behavioral Therapy for Obsessive-Compulsive Disorder

Robert R. Selles, Michael L. Sulkowski, & Eric A. Storch

Obsessive-compulsive disorder (OCD) affects approximately 1-2% of individuals in the United States (Kessler et al., 2005; Zohar, 1999), with many others experiencing subclinical obsessive-compulsive symptoms (Douglass et al., 1995). The disorder is characterized by anxiety provoking, time-consuming, and impairing intrusive thoughts (i.e., obsessions) and anxiety/distress-reducing compulsions (American Psychiatric Association, 2000). If untreated, the course of OCD often is chronic and unremitting after symptom presentation; therefore, early and aggressive OCD treatment is warranted (Eisen et al., 2006).

Two treatment approaches for OCD are empirically validated: cognitive behavioral therapy (CBT) with exposure and response prevention (E/RP; please note that the use of “CBT” throughout this chapter implies the combined use of exposure and response prevention) and pharmacotherapy involving the use of serotonin reuptake inhibitors (SRIs). Although SRI monotherapy has demonstrated efficacy in randomized placebo controlled trials, CBT has emerged as the first line treatment for OCD due to superior treatment gains relative to SRIs, greater long-term symptom relief, and a lower risk for untoward treatment effects (Abramowitz, Whiteside, & Deacon, 2005; Eddy, Dutra, Bradley, & Westen, 2004; Mancuso, Faro, Joshi, & Geller, 2010). Furthermore, CBT’s benefits may extend to comorbid conditions (e.g., depression) and is associated with overall improvements in quality of life (Diefenbach, Abramowitz, Norberg & Tolin, 2007; Rector, Cassin, & Richter, 2009; Storch et al., 2008a).

Cognitive-Behavioral Therapy: An Integrative Treatment Approach

The Task Force on Promotion and Dissemination of Psychological Procedures (1995) awarded CBT “well established” status for treating OCD given its efficacy in randomized controlled trials suggesting that up to 85% of individuals are treatment responders and approximately 50% experience disorder remission (Foa

et al., 2005; Franklin et al., 2011; POTS, 2004; Simpson, Huppert, Petkova, Foa, & Liebowitz, 2006). In addition, recent meta-analytic studies illustrate the efficacy of CBT for treating both children and adults (Eddy et al., 2004; Stewart & Chambless, 2009; Watson, & Rees, 2008) and highlight strong effect sizes ($ES > .80$; Eddy et al., 2004).

Cognitive-behavioral therapy is based on behavioral conditioning principles and cognitive mediation theory (Foa, & Kozak, 1985; Salkovskis, 1985). Behaviorally, a previously neutral stimulus becomes associated with a conditioned response (e.g., fear, disgust), which contributes to obsessive thoughts about and active avoidance/ritualized behavior when confronted by the newly conditioned stimulus. The conditioned emotional/fear reaction is further reinforced through the performance of anxiety-reductive rituals and/or pathological avoidance of anxiety-provoking stimuli. Compulsions gradually become more time-consuming/interfering as individuals with OCD become increasingly reliant on rituals to cope with obsessional anxiety. Because compulsions prevent individuals from naturally habituating to anxiety and only provide temporary relief, the performance of these behaviors can trap patients in a cycle that develops, amplifies, and sustains the presence of obsessive thinking and associated ritualizing.

With the goal of interrupting this cycle, CBT aims to break the association between obsessive thinking and the need to perform anxiety-reductive compulsions. Patients are systematically (i.e., moving from 'easier' to more difficult anxiety triggers) exposed to anxiety-provoking situations without ritualizing, which allows them to habituate to anxiety naturally. Through repeated exposure to progressively more challenging stimuli, the association between the neutral stimuli and the fear response is weakened. Additionally, CBT aims to inoculate individuals to intrusive or obsessive thoughts by encouraging them to challenge these thoughts through cognitive restructuring and placing patients in situations in which feared outcomes do not occur in the absence of rituals.

Treatment Structure and Course

Regardless of patient age or type of treatment protocol (e.g., individual, group-based), CBT for OCD most commonly includes the following components: psychoeducation, development of an exposure hierarchy, behavioral exposures with response prevention, cognitive exercises and relapse prevention. Of these components, exposure and response prevention in particular appears to be associated with robust treatment outcomes (Deacon & Abramowitz, 2004; Rosa-Alcázar, Sánchez-Meca, Gómez-Conesa, & Marín-Martínez, 2008). Psychoeducation generally is provided at treatment outset and includes teaching patients about the nature of OCD and the ways in which it is maintained, as well

as the expected process of therapy. Specifically, patients are educated about how OCD is a neurobiological disorder that is caused by a combination of biological and environmental factors. Additionally, patients should be taught about the efficacy of CBT and how the treatment involves behavioral exposures and cognitive restructuring. While providing psychoeducation, the therapist may also address expectations for treatment compliance and homework completion to reduce attrition and disabuse patients of inaccurate notions they may have.

Following psychoeducation, the patient and therapist develop a customized fear hierarchy. With the help of a therapist, the patient creates a list of situations or stimuli that are associated with varying levels of distress and then ranks/orders these situations/stimuli using subjective units of distress (SUDs; e.g., the subjective intensity of distress experienced by an individual in a certain situation) on an E/RP hierarchy. Some items may have the same basic stimulus (e.g., germs/contamination) yet involve significantly different levels of contact with that stimulus from imaginal (e.g., thinking about touching a toilet, scripts of feared triggers) to *in vivo* (e.g., being near a toilet, touching a toilet).

The patient and therapist collaborate to begin behavioral exposures after developing the exposure hierarchy. Exposure and response prevention involves exposing patients to anxiety-provoking situations/stimuli while encouraging them to resist performing compulsions. Patients are exposed to mildly anxiety provoking stimuli or situations early in treatment to eschew flooding, which can overwhelm a patient's capacity to resist performing anxiety-reducing compulsions. As treatment progresses, progressively more difficult items on the exposure hierarchy are attempted to allow the patient to habituate to anxiety without performing compulsions. Additionally, as an integral part of CBT, patients are provided with homework and between-session exposure tasks to reinforce their progress in session. As a general rule of thumb, homework exposures should be comparable to exposures performed in session and should recapitulate progress made in therapy.

Some CBT practitioners emphasize the use of cognitive therapy techniques for treating OCD such as identifying and challenging maladaptive thoughts, although E/RP remains the mainstay for CBT (for review see Wilhelm & Steketee, 2006). With this treatment approach, the therapist helps the patient critically examine and evaluate their thoughts through techniques such as Socratic questioning, identifying cognitive errors, using thought records, the downward arrow technique, listing advantages and disadvantages, and the double standard technique (Wilhelm et al., 2009). However, caution may be warranted at times when using cognitive therapy for treating OCD to ensure that cognitive interventions do not become ritualized behaviors and increase rather than decrease obsessive-compulsive symptomology (van Oppen & Arntz, 1994). For

example, Wilhelm and Steketee (2006) describe a phenomenon in which cognitive restructuring can become a new mental ritual and caution therapists to ensure that patients respond to intrusive thoughts directly instead of challenging their interpretations of these thoughts.

Relapse prevention is completed at the end of treatment and functions to terminate treatment while encouraging patient success beyond treatment completion. Most commonly, relapse prevention is a collaborative process between the therapist and patient that involves brainstorming future situations in which obsessions may arise/return and developing plans to deal with this anxiety. Relapse prevention allows the therapist to evaluate patient understanding of treatment concepts, encourage generalization of treatment gains, and prepare patients for possible future increases in anxiety while increasing the likelihood of treatment maintenance (Hiss, Foa, & Kozak, 1994).

CBT for Pediatric OCD

In contrast to adults, insight is not a prerequisite for children to be diagnosed with OCD (APA, 2000). Children may lack insight into their obsessive-compulsive symptoms or not view them as a problem, even if they cause functional impairment. However, obsessive-compulsive symptoms are influenced by patient insight and have a bi-directional impact with family dynamics/functioning (March, 1995). For example, families that contain an individual with OCD are more likely to show high levels of accommodation or behaviors conducted by the family that assist in the completion of rituals (e.g. removal of feared stimuli, reassurance provision). Considering how this dynamic influences and is influenced by obsessive-compulsive symptoms, CBT for children with OCD should heavily include patient's primary caregivers (Storch et al., 2007).

Modeling CBT for parents and caregivers and coaching them through using exposures for homework practice can expedite treatment as well as empower caregivers to help their children after treatment termination. Additionally, including caregivers in treatment allows the therapist to address and improve family factors that may have contributed to the child's development or maintenance of OCD. For example, patients with relatives who express antagonistic or accommodating attitudes toward OCD demonstrate poorer response to treatment and an increased likelihood of relapse (Renshaw, Steketee, & Chambless, 2005). Further, the presence of poor social or familial functioning and patient-rated negative household interactions has been predictive of poor treatment gains (Steketee & Van Noppen, 2003).

Eliminating problematic family dynamics and teaching parents how to support their child's treatment can help create an environment that fosters long-term

improvement and maintenance of treatment gains (O’Leary, Barrett, & Fjermestad, 2009). Specific strategies for connecting family members to treatment may include providing targeted psychoeducation to family members to decrease OCD ritual accommodation, employing cooperative family members as treatment assistants, and providing support for family members dealing with frustrating patient behaviors (Steketee & Van Noppen, 2003). Ultimately, because of the strong influence parents exert on children’s behavior, the treatment of pediatric OCD should be contextualized within the family system.

Other considerations for treating pediatric OCD involve using developmentally appropriate language during treatment, using analogies and play scenarios to facilitate exposure tasks, encouraging children to engage in “behavioral experiments,” and consulting or collaborating with members involved in a child’s educational programming (e.g., teachers or school psychologists; Piacentini, March, & Franklin, 2006). Through working with members of school communities, therapists can decrease the likelihood of symptom accommodation in the school environment while increasing the number of individuals who can support a child’s healthy psychosocial functioning and emotional well-being (Sulkowski, Wingfield, Jones, & Coulter, 2011). Furthermore, a predominately school-based CBT intervention approach may be warranted in the absence of trained community providers (Sloman, Gallant, & Storch, 2007). On balance, however, many barriers to treatment exist in school settings (e.g., difficulty incorporating family members, confidentiality, duration of treatment sessions) and there are a limited number of trained CBT practitioners who work in school settings. Therefore, it is important to consult with members of school communities to assess their level of expertise in CBT for OCD and how they can best support a child who is receiving treatment.

The aforementioned CBT strategies for pediatric OCD have applications for different populations of youth including pre-school aged children (Freeman et al., 2008; Ginsburg, Burstein, Becker, & Drake, 2011), school-aged children, and adolescents (Barrett, Healy-Farrell, & March, 2004; Storch et al., 2007). In addition to the expected treatment gains, these models have been associated with reductions in family accommodation and OCD-related impairment (Storch et al., 2007).

Intensive CBT

Most CBT treatment protocols include between 12-16 weekly sessions; however, intensive CBT condenses a standardized treatment approach into a 3-4 week period through increasing the frequency and duration of sessions (Pence, Storch, & Geffken, 2010). Weekly CBT may not be realistic for patients who cannot find providers in their area. In contrast, the condensed session format of intensive

CBT reduces logistical burdens associated with traveling to receive treatment, which may be appeal to individuals and families who do not have local access to providers (Storch et al., 2007). Further, intensive CBT may allow for more rapid symptom reduction, which may increase patient motivation and make this treatment approach better suited for patients with significant functional impairment (Storch et al., 2007). Independent of their differences, intensive and weekly CBT are associated with similar declines in obsessive-compulsive symptoms at post-treatment (Foa et al., 2005; Storch et al., 2007; Storch et al., 2008b; Storch et al., 2010).

Group-Based CBT

In addition to intensive CBT, group-based CBT is an alternative approach to delivering CBT for OCD. Group-based CBT typically includes one therapist and five or fewer participants, thus allowing a number of participants to receive treatment concomitantly (Himle, Van Etten, & Fischer, 2003). In addition to potentially reaching more individuals, group-based CBT has other advantages. The treatment requires a therapist to spend less time on each patient and may lower overall treatment costs (Himle et al., 2003; Jónsson, Hougaard, & Bennedsen, 2011). Further, group-based CBT may help normalize obsessive-compulsive symptoms for participants, provide members with peer and social support, and motivate some members due to group contingencies (e.g., competition, fear of loafing; Himle et al., 2003). Conversely, group-based CBT also has specific disadvantages compared to individually delivered CBT. Patients may disclose less during group sessions and the task of providing individual attention to each patient may prove difficult, especially in groups with a problematic or domineering patient (Himle et al., 2003). Further, due to the diverse presentation of obsessive-compulsive symptoms, group-based CBT may be less personalized and more generally focused (Himle et al., 2003). As a result, exposure and cognitive exercises may not directly pertain to all group members. Group-based CBT has demonstrated comparable efficacy to individually administered CBT in both adult and pediatric populations, although it must be cautioned that fewer methodologically rigorous trials have been published (Barrett et al., 2004; Jónsson & Hougaard, 2009; Jónsson et al., 2011).

Alternative Dissemination

While group and intensive cognitive-behavioral therapy are two ways of addressing the current shortage of trained CBT practitioners, developing forms of administration include bibliotherapy, self-help with minimal therapist contact, computer guided therapy, and web-camera administered CBT (Andersson et al., 2012; Fritzler, Hecker, & Losee, 1997; Greist et al., 2002; Storch et al., 2011;

Tolin, Maltby, Diefenbach, Hannan, & Worhunsky, 2004). Stepped care, in which patients are first given a low-intensity and low-cost treatment followed by a more intense and costly intervention if they do not respond to the first intervention displays promise as an emerging treatment approach. In a recent investigation, Tolin, Diefenbach, and Gilliam (2011) provided adult OCD patients ($N = 30$) patients with 6 weeks of low-intensity counseling with E/RP bibliotherapy followed by 17 sessions of therapist-driven CBT if they did not respond to the first intervention. Results indicated that two treatments were equally efficacious as 67% of stepped care completers and 50% of therapist-driven CBT completers experienced clinically significant symptom reductions at post-treatment. Overall, however, the aforementioned disseminations are fairly novel and await rigorous empirical validation. Therefore, therapist administered CBT remains the first-line treatment for OCD.

Factors Affecting Treatment Response and CBT Augmentation

Despite the well-established efficacy of CBT for treating OCD, many patients still display impairing symptoms after treatment (de Haan, 2006). Furthermore, some people refuse to participate in CBT or prematurely dropout of treatment for a variety of reasons (Keeley, Storch, Merlo, & Geffken, 2008). Although wide variability exists in OCD symptom presentation and severity, many treatment avoidant and refractory patients share similar characteristics that can compromise and attenuate their treatment response.

In a recent review, McKay, Storch, Nelson, Morales, and Moretz (2009) identified several treatment-interfering factors for pediatric OCD including the presence of comorbid conditions, scrupulosity and overvalued ideation, low cognitive functioning, stimulus-environment and stimulus-outcome relations, and biological factors. Additionally, Pence, Sulkowski, Jordan, and Storch (2010) discuss difficult scenarios that may emerge during CBT treatment for OCD such as incidental exposures (i.e., when a patient accidentally is exposed to a highly distressing stressor during exposure therapy), when patients fail to habituate to anxiety, misjudge the intensity of exposures, perform mental/covert rituals that interfere with treatment, and display unusually high levels of anxiety sensitivity. Below, we discuss such common treatment-interfering factors as well as ways to address these and improve treatment outcomes.

Comorbid Conditions

The presence of other psychiatric disorders or conditions along with OCD can exacerbate symptoms and negatively impact patient's psychosocial functioning. Thus, disorder comorbidity can exert a deleterious effect on patients and complicate CBT. Disruptive behavior disorders (e.g., oppositional defiant disorder, conduct disorder, attention deficit/hyperactivity disorder) and certain

types of mood disorders are associated with attenuated CBT response rates in youth with OCD (Abramowitz, Franklin, Street, Kozak, & Foa, 2000; Storch et al., 2008c). However, other comorbid conditions do not appear to impact children's treatment response and mixed findings exist regarding others. For example, the presence of a comorbid anxiety disorder (e.g., generalized anxiety disorder, social phobia, panic disorder) did not negatively affect children's response to CBT for pediatric OCD (Storch et al., 2010). Similarly, the presence of comorbid tics (e.g., Tourette's disorder) did not affect the efficacy of CBT in a recent trial (March et al., 2007). In one study, major depression was a poor prognostic indicator for CBT response in children with OCD (e.g., Storch et al., 2008c), but previous investigations and subsequent studies did not establish this relationship (Foa, Kozak, Steketee, & McCarthy, 1992; Storch et al., 2010).

Although the task of disentangling anxiety-driven or reactive behaviors from oppositional/defiant ones can be difficult, the unique needs of children with comorbid OCD and disruptive behavior disorders can be addressed through flexibly employing a combination of behavioral and CBT interventions (Ale & Krackow, 2012). A case study by Lehmkuhl et al. (2009) provides preliminary support for the use of behavior management training prior to using CBT to treat a child with OCD and disruptive behavior disorder symptoms. This intervention approach involved providing psychoeducation to the patient's mother (primary caregiver) on OCD, CBT, and disruptive behavior as well as coaching in the delivery of positive attention and planned ignoring, strategies to deliver effective commands, and the effective implementation of a token economy. Following four behavior management training sessions, 11 sessions of exposure-based CBT were delivered to treat the patient's obsessive-compulsive symptoms. Additionally, this part of the treatment involved psychoeducation and modeling to reduce maladaptive accommodation of the child's anxiety symptoms and regular meetings with the patient's mother to reinforce various components learned during behavior management training. Overall, this combined treatment approach was effective as the patient displayed significant reductions in both disruptive behavior and OCD symptoms.

In adults, severe depression in patients with OCD is associated with lower CBT response rates compared to non-depressed or patients with mild depression (Abramowitz & Foa, 2000; Abramowitz et al., 2000; Steketee, Chambless, Tran, 2001). Additionally, generalized anxiety disorder (GAD) has been found to predict treatment dropout in adult OCD patients (Steketee et al., 2001), while the presence of PTSD symptoms also may increase treatment dropout and attenuate response rates (Gershuny, Baer, Jenike, Minichiello, & Wilhelm, 2002). Lastly, adult patients with comorbid personality disorders have been reported to respond poorly to CBT (AuBuchon & Malatesta, 1994; Minichiello, Baer, & Jenike, 1987); however, other studies suggest that the presence of personality disorders do not

negatively impact the influence of CBT on reducing OCD symptoms (Dreessen, Hoekstra, & Arntz, 1993; Fricke et al., 2006; Steketee et al., 2001). Fricke et al. (2006) suggest that identifying and addressing specific personality traits that can interfere with treatment (e.g., schizotypal traits; Minichiello et al., 1987) early in treatment is important, so CBT can be adapted to the unique needs of individual patients. For example, in lieu of spending a lot of time working on establishing a strong therapeutic relationship, a therapist could modify treatment for individuals with comorbid OCD and schizotypal traits to focus on how they may directly benefit from treatment.

Poor Treatment Adherence

Commitment and investment in CBT is associated with a positive treatment response (March, Franklin, Nelson, & Foa, 2001). However, experiencing extreme fear when thinking about confronting anxiety-provoking stimuli and situations can forestall some individuals from engaging in this process and experiencing positive outcomes that may result from participating in E/RP. This phenomenon is particularly evident when individuals experience secondary gains from their OCD symptoms such as feeling morally superior to others because of specific rituals that they perform (e.g., compulsive praying), sacrificing for (or engaging in) certain behaviors to protect others (e.g., checking door locks to lessen the possibility of home intrusion, robbery, or murder), and when caregivers purposefully or inadvertently reinforce the performance of certain rituals (e.g., compulsively checking homework for accuracy). Thus, these individuals may feel ambivalent about giving up their OCD symptoms and display low motivation for CBT, a change-based therapy approach.

Motivational interviewing (MI), a therapeutic approach with roots in humanistic psychology that has been popularized by Miller and Rollnick (2002), aims to resolve ambivalence between patients' current behavior and their goals. Although not necessarily the central focus of this approach, MI can enhance individual's motivation for change or willingness to engage in therapy through illustrating the discrepancy between his or her ideal or desired life and current behavior. In one study, Maltby and Tolin (2005) provided four MI sessions prior to conducting CBT to engage adult patients who had previously refused exposure-based CBT to engage in treatment. Most (86%) of patients who received MI agreed to attempt E/RP and these patients also displayed greater reductions in OCD symptoms at post-treatment compared to patients in a waitlist condition. However, more recent studies do not support the adjunctive benefit of adding MI to CBT for adults with OCD as measured in patient adherence to exposure tasks (Simpson, Zuckoff, Page, Franklin, & Foa, 2008; Simpson et al., 2010). As suggested by Simpson et al. (2010) the appropriate dosing and spacing of MI sessions may have an important impact on the effectiveness of a combined MI and CBT treatment approach. For

example, a study by Merlo et al. (2010) involved providing MI prior to key or particularly challenging exposure sessions whereas the previous studies (e.g., Simpson et al., 2008; Simpson et al., 2010) involved providing MI at the outset of treatment. Merlo et al. (2010) used a combined MI and family-based approach to treating pediatric OCD in treatment resistant youth and those results suggest that this approach may accelerate a youth's speed of response to CBT.

Low Insight or Intellectual Functioning

Insight involves recognizing that one's obsessions and compulsions are excessive and unreasonable and it varies considerably across individuals. Approximately 36% of adults (Alonso et al., 2008) and more than half (52%) of children are estimated to have low insight into their OCD symptoms (Lewin et al., 2010; Storch et al., 2008d). Furthermore, low insight is associated with greater symptom severity (Bellino, Patria, Ziero, & Bogetto, 2005; Storch et al., 2008d), higher comorbidity rates (Bellino et al., 2005; Lewin et al., 2010; Storch et al., 2008d), low symptom resistance (Alonso et al., 2008), lower cognitive functioning and adaptive behavior (Lewin et al., 2010), and poor treatment outcomes (Alonso et al., 2008).

Individuals with low insight may have difficulty integrating information that is inconsistent with their obsessive beliefs (Tolin, Abramowitz, Kozak, & Foa, 2001), which could render cognitive restructuring ineffective and contribute to decreased CBT response rates (Lewin et al., 2010; Storch et al., 2008d). Therefore, Lewin et al. (2010) suggests reducing the use of cognitive therapy techniques with patients with low insight and placing a greater emphasis on behavioral ones. Additionally, SRI augmentation may help some individuals with low insight habituate to exposures more effectively, although research is needed to establish this approach (Foa, Abramowitz, Franklin, & Kozak, 1999).

A primarily behavioral approach to treating OCD is also recommended for individuals with intellectual disabilities and borderline intellectual functioning. In a recent case series, Pence, Aldea, Sulkowski, and Storch (2010) modified a CBT treatment protocol to treat adults with borderline intellectual functioning. Modifications included increasing parental involvement in treatment, simplifying language used in session, reducing the use of cognitive therapy techniques, and the addition of a contingency management and role-playing strategies with caregivers. Following these modifications, all three patients in this case series experienced reductions in their OCD symptoms at post-treatment. Similarly, Ellis, Ala'i-Rosales, Glenn, Rosales-Ruiz, and Greenspoon (2006) highlight the importance of a therapist modeling therapeutic techniques (e.g., exposure tasks) and providing social rewards (e.g., positive attention) in session to motivate children with intellectual disabilities to participate in exposures. Further, Anderson and Morris (2006) recommended using visuals (e.g., charts, graphs, pictures) when providing

psychoeducation to youth with cognitive limitations as well as including caregivers in treatment as much as possible to increase treatment generalization.

Biological Factors

Specific biological events can engender or exacerbate OCD symptoms. Pediatric autoimmune neuropsychiatric disorders associated with streptococcus (PANDAS) have received increased attention over the past decade due to advances in identification and treatment of the condition in children (see Martino, Defazio, & Giovannoni, 2009 for review). In contrast to other presentations of OCD, the onset of PANDAS is rapid and various symptoms associated with the syndrome (e.g., obsessive-compulsive behavior, tics, irritability/agitation, hyperactivity, impaired attention control) emerge following an autoimmune response to exposure to streptococcus infection. In addition to displaying anxiety and repetitive behaviors, youth with PANDAS often display neurological dysfunction, excessive motor activity, and impaired executive functioning abilities that are not related to the presence of a premorbid or comorbid condition (e.g., tic disorder).

If a child's clinical presentation suggests PANDAS, a physician can verify the presence of streptococcal infection and treat the infection accordingly, which may involve antibiotic therapy and/or immune-modulatory treatments (e.g., interventions that purport to interrupt the autoimmune response to streptococcal bacteria). Although research on psychological treatments for PANDAS is nascent, a study by Storch et al. (2006) provides preliminary support for treating youth with PANDAS-related OCD using CBT. Six out of seven participants were treatment responders following 14 intensive CBT sessions and these youth maintained their gains at three-month follow-up. Therefore, individuals with PANDAS may benefit from combined medical and psychological treatments and the efficacy of CBT for OCD appears to be independent from the etiology of symptoms.

Conclusions and Future Directions

Cognitive-behavioral therapy is a safe, effective, and durable treatment for OCD in children and adults. As a first-line treatment, a number of alternative formats have emerged (e.g., intensive CBT, group-based CBT) that each have specific advantages and may be similarly effective. However, the number of trained CBT practitioners is limited and not all patients respond favorably to treatment. Therefore, efforts are underway to personalize and augment CBT to address treatment-interfering factors such as the presence of comorbid psychopathology, poor insight and treatment motivation, low cognitive functioning, and biological factors (e.g., PANDAS) that can engender or exacerbate OCD symptoms.

Despite the treatment's established efficacy, improving and augmenting CBT remains an exciting area of clinical and research attention, especially for improving outcomes for difficult to treat and treatment refractory cases. For example, D-cycloserine (DCS), an antibiotic that initially was used as a treatment for tuberculosis, has recently been used to facilitate fear extinction and exposure therapy (Norberg et al., 2008) with some success in adult (Kushner et al., 2007; Wilhelm, et al., 2008) and pediatric OCD samples (Storch et al., 2010). Although results from a meta-analysis suggest that DCS did not result in superior post-treatment results compared to CBT without DCS augmentation, results of this analysis also indicate that DCS augmentation was associated with increases in the speed and efficiency by which patients experienced reductions in anxiety (Norberg et al., 2008). Thus, the use of DCS in conjunction with CBT may be a promising approach for facilitating early treatment gains and reducing premature dropout.

In addition to DCS augmentation, other novel approaches to delivering CBT or enhancing its effectiveness have been developed over the past several decades. The delivery of CBT has been tailored for different settings (e.g., school, community mental health center) and populations (e.g., children, adults). Overall, considerable growth has been observed in the dissemination of CBT as well as its research support. However, room for growth still exists in these important respects as well as for further refinement of this efficacious treatment.

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