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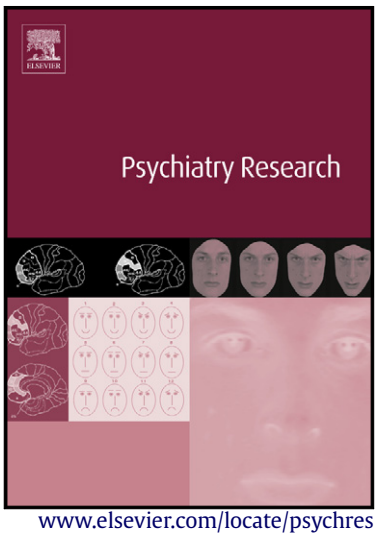

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Efficacy of cognitive-behavioral therapy for obsessive-compulsive disorder

Dean McKay*[a]

Debbie Sookman[b]

Fugen Neziroglu[c]

Sabine Wilhelm[d]

Dan J. Stein[f]

Michael Kyrios[g]

Keith Matthews[h]

David Veale[i]

In press, *Psychiatry Research*

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[a] Fordham University, Bronx, NY, USA
[b] McGill University, Montreal, Quebec, Canada
[c] Biobehavioral Institute, Great Neck, NY, USA
[d] Harvard University & Massachusetts General Hospital, Boston, MA, USA
[f] University of Cape Town, Cape Town, South Africa
[g] University of Melbourne, Melbourne, Australia
[h] University of Dundee, Dundee, UK
[i] NIHR Specialist Biomedical Research Centre for Mental Health at the South London and Maudsley NHS Foundation Trust and The Institute of Psychiatry, King's College London, UK

Correspondence: Dean McKay, Department of Psychology, Fordham University, Bronx, NY 10458 (email: mckay@fordham.edu; phone: 718-817-4498)

Abstract

Cognitive-behavioral therapy (CBT), which encompasses exposure with response prevention (ERP) and cognitive therapy, has demonstrated efficacy in the treatment of obsessive-compulsive disorder (OCD). However, the samples studied (reflecting the

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heterogeneity of OCD), the interventions examined (reflecting the heterogeneity of CBT), and the definitions of treatment response vary considerably across studies. This review examined the meta-analyses conducted on ERP and cognitive therapy (CT) for OCD. Also examined was the available research on long-term outcome associated with ERP and CT. The available research indicates that ERP is the first line evidence based psychotherapeutic treatment for OCD and that concurrent administration of cognitive therapy that targets specific symptom-related difficulties characteristic of OCD may improve tolerance of distress, symptom-related dysfunctional beliefs, adherence to treatment, and reduce drop out. Recommendations are provided for treatment delivery for OCD in general practice and other service delivery settings. The literature suggests that ERP and CT may be delivered in a wide range of clinical settings. Although the data are not extensive, the available research suggests that treatment gains following ERP are durable. Suggestions for future research to refine therapeutic outcome are also considered.

Keywords: obsessive-compulsive disorder; exposure with response prevention; cognitive therapy; meta-analysis; treatment adherence

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1. Introduction

Obsessive-compulsive disorder (OCD) is widely recognized as a serious and debilitating psychiatric condition (e.g., Markarian, et al., 2010). The disorder is marked by three distinct components. One component, obsessions, has been defined as

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intrusive and unwanted thoughts, images or ideas, as well as doubts about actions. Obsessions are typically in specific areas such as horrific images (such as blasphemy, sexual ideas, or violent images), thoughts of contamination, or doubts relating to whether some action was not completed. The second component, compulsions, has been defined as specific behavioral actions, including covert mental rituals, intended to neutralize the obsessions, or to verify behaviors that are the subject of doubts. In addition to these two primary components, individuals with the disorder engage in extensive avoidance to prevent the provocation of obsessions and their associated compulsions. A diagnosis of OCD has serious implications for the sufferer as the disorder is associated with extensive disability covering virtually all aspects of functioning, increased healthcare utilization, and reduced quality of life (Markarian et al., 2010).

Since Meyer (1966) first described treatment employing exposure with response prevention (ERP), cognitive behavioral therapy (CBT)[1] has been refined for OCD to the point that this approach is considered the most efficacious psychotherapeutic method of treating the disorder. In Meyer's original report, he described two cases of OCD, one with checking symptoms to ensure that clothing and other objects used by her baby were not dirty. The other case was marked by intrusive and unwanted sexual and blasphemous thoughts, with accompanying ritualistic behavior to annul these obsessions. These two case studies illustrate the heterogeneity of OCD. First, as

[1] We rely on the broad term CBT to reflect treatment protocols that integrate exposure based treatment with cognitive therapy approaches. Throughout the manuscript, exposure-based treatment will be referred to as exposure with response prevention (ERP) and cognitive therapy (CT) will be used to refer to protocols that emphasize cognitive-restructuring and that may include behavioral experiments but do not utilize exposure as central to treatment.

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demonstrated by extensive research, OCD is marked by different symptom dimensions (McKay et al., 2004; Abramowitz, McKay, and Taylor, 2005). Factor and cluster analytic research has shown that OCD is comprised of the following broad dimensions: obsessions (aggressive, sexual, religious, somatic) and checking compulsions; symmetry obsessions and ordering, counting, and repeating compulsions; contamination obsessions and cleaning compulsions; and hoarding.[2] In addition to these dimensions, there is a wide range of common complicating symptoms associated with the disorder, such as comorbid depression, comorbid anxiety disorders, and overvalued ideas (Abramowitz, McKay, and Taylor, 2008a; Abramowitz, McKay, and Taylor, 2008b). As a result, the treatment literature on OCD, while emphasizing the efficacy of CBT broadly defined, does not necessarily provide a straightforward summary of treatment decisions for practitioners. Further, in light of the heterogeneity of OCD symptoms (McKay et al., 2004), there is little data examining specific symptom presentations, further complicating any treatment guideline endeavor. For example, it has been suggested that primarily mental obsessions have a more chronic course (Sibrava et al., 2011) necessitating a longer course of therapy. Some post-hoc analyses have suggested

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[2] With the development of the fifth edition of the Diagnostic and Statistical Manual (DSM-5; APA, 2013) hoarding is now a separate disorder within a broader new category, the Obsessive-Compulsive Related Disorders. This change is the result of extensive research showing that hoarding has substantially different pathophysiological, cognitive, behavioral, and neuropsychological symptom profiles from other OCD symptoms (Pertusa et al., 2008; Pertusa et al., 2010; Mataix-Cols et al., 2010), is associated with specific symptom profiles (Mogan et al., 2012) and poorer treatment response when therapy is similar to that employed for OCD (Abramowitz et al., 2003), and is best explained by a different conceptual model of etiology and maintenance (Frost, 1996). However, hoarding behaviors that are in response to obsessions will still be part of OCD

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differential treatment outcome based on symptom dimension (i.e., Abramowitz et al., 2003), which would also suggest some specific guidelines. Further still, recent research has suggested that significant heterogeneity exists within dimensions. For example, contamination fear is considered one of the more readily treated symptoms of OCD (Abramowitz et al., 2003). Yet, it has also been shown that contamination fear is often marked by significant disgust, rather than fear, and the response to exposure for disgust is lower than for anxiety (McKay, 2006). As a more general indicator, it has been shown that disgust may be associated with higher levels of intrusive images that are, in turn, more difficult to treat using existing CBT methods.

Given the heterogeneity of the condition, clinicians would benefit from a systematic set of guidelines derived from the existing CBT literature, There are two major aims of this paper. The first is to summarize the efficacy of CBT for OCD based on existing meta-analyses. This includes a refinement over previous guidelines by highlighting specific predictors of treatment response in order that clinicians may better anticipate factors that require additional clinical intervention to improve outcome. Mechanisms hypothesized to underlie ERP, and its efficacy, as well as mechanisms thought to underlie cognitive therapy (CT) and its efficacy are presented. The second aim is to articulate a research agenda for further refining the guidelines offered here, in light of the complexity of the disorder. These aims were undertaken with the objective of clearly illustrating the range of outcomes that could be expected when employing CBT for OCD, providing recommendations for standards of care, and describing areas of future investigation.

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2. Exposure with Response Prevention

As noted above, the first cognitive-behavioral intervention for OCD was ERP. Treatment using this approach involves developing a hierarchy of presenting symptoms, from least fear producing to most, and then guiding the client through exposure to items on the hierarchy until the highest level items are readily tolerated. In parallel, response prevention is included, whereby the client is asked to refrain from completing the compulsions that would otherwise eliminate the anxiety or distressing emotional reaction, or by re-applying the exposure to the fear stimulus immediately following the completion of compulsions (Rowa, Antony, and Swinson, 2007). To illustrate, in the treatment of contamination fears, exposure would center on feared contaminating stimuli. The individual is asked to stop washing rituals. However, if the individual "slips" and washes, re-contamination would be recommended immediately following. In the strictest sense, ERP involves exposure to the feared stimuli, and then effectively 'waiting' for the anxiety to subside through habituation. However, there are variations in how ERP is conducted, including efforts to enhance the intensity of the exposure experience via clinician-assisted imagery.

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2.1 Hypothesized Action of Exposure with Response Prevention, and Barriers to Implementation: In the original case illustrations of OCD treatment, and subsequent behavioral conceptualizations, OCD was considered as a disorder acquired through classically conditioned fear responses, and maintained through negatively reinforced avoidance responses (Mowrer, 1960). However, it was observed that many individuals

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with OCD had symptoms that showed remarkable persistence despite adherence to treatment with ERP (Foa et al., 1983). As a result, further examination revealed several important factors to maximize the efficacy of ERP. The central target in any exposure treatment is the fear structure that is stored in memory (Foa and Kozak, 1986). This requires satisfaction of several criteria. First, exposure should be conducted that is sufficiently arousing that it activates the fear structure, but not so arousing that new learning cannot be accomplished. To illustrate, moving too quickly up the fear hierarchy can lead to intense emotional arousal where the exposure itself sensitizes the fear structure and the situation is escaped before any habituation may occur. Second, since humans seek safety information, efforts to manipulate the exposure exercise to minimize its impact should be addressed by the clinician. Foa and Kozak provided a particularly clear illustration of this effect with a client suffering from contamination fear:

> "During exposure sessions urine was put on several places on his arm. A strong initial fear reaction was manifested in nervous movements, blushing, and a very high anxiety rating. However, unlike the gradual reduction of anxiety observed in most patients, a sharp response decrement (within 3-5 min) was observed with this patient. This pattern of high initial response followed by rapid decline was repeated daily: Long-term habituation was not evident. Inquiry revealed a curious avoidance technique: In his imagination this patient first "froze" the contaminated spots to prevent their "spread"; having controlled them he stopped attending to them. In this case, the observed response decrease seemed not to reflect therapeutic emotional processing but rather, successful avoidance of the contaminant." (Foa and Kozak, 1986, p. 30)

This illustrates the act of cognitive avoidance that may occur in ERP. Therefore, interventions involving ERP require ongoing assessment on the part of the clinician to

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address this special kind of avoidance in order to produce therapeutic benefit. Since the time of this conceptualization, it has been found that many individuals with OCD also engage in covert rituals (Purdon, 2008) that warrant specific treatment attention.

Whereas clients may strategically and automatically engage in avoidance responses, other prevailing emotional states, notably depression, further interfere with emotional processing. This has been borne out in additional research, with comorbid depression often shown to be a specific poor prognostic indicator for treatment outcome in OCD (Abramowitz et al., 2007; Keeley et al., 2008) although some studies have failed to replicate the prognostic value of depression in pharmacological treatment studies (Mawson, Marks, and Ramm, 1982) or naturalistic follow-up studies (Zitterl et al., 2000). There are several hypotheses for the purported poorer response, although none has been extensively evaluated. One is that clients with OCD and comorbid depression are over reactive to ERP, which in turn hinders habituation (Abramowitz, 2004). Another hypothesis is that depression in individuals with OCD leads to poorer motivation for treatment, particularly given the demands of ERP (Keeley et al., 2008). And finally, it has been suggested that depression leads to an increased risk for obsessional experiences (Abramowitz et al., 2007).

An additional prognostic indicator that has been described is overvalued ideation. Foa and Kozak (1986, 1994) identified overvalued ideas as a client factor that interferes with emotional processing during exposure. Overvalued ideation has been defined as a transient psychotic feature whereby the accuracy of the obsessions, or the necessity of the associated compulsions, is deemed essential rather than irrational

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(Kozak and Foa, 1994). It has been noted that overvalued ideas with associated impaired insight interfere with disconfirmatory learning, ability to achieve habituation, and potentially may instead further sensitize clients when faced with feared situations they have difficulty reappraising. Overvalued ideas have also been conceptualized as rigid beliefs derived from idealized values that are over-identified with the self (Veale, 2002). The presence of overvalued ideas has been associated with poor treatment response (e.g., Neziroglu et al., 2001; Neziroglu et al., 2004). In fact, it has been reported that OCD individuals with high overvalued ideas, as assessed by the Overvalued Ideas Scale (OVIS: Neziroglu et al., 1999), do not significantly differ from schizophrenic patients on tests of cognitive functioning (Catapano et al., 2010), and they display more extensive cognitive dysfunction on tests of verbal learning and memory (Kitis et al., 2007).

Among client-related specific prognostic indicators, an important and under examined component of treatment efficacy is patient adherence. Recent research has shown patient adherence to treatment significantly predicted both acute and long-term outcome in both completers and intent-to-treat patients (Simpson et al., 2011; Simpson et al., 2012). Moreover, data suggest that other predictors of outcome (e.g., baseline OCD severity, hoarding subtype, working alliance, readiness for treatment) may impact outcome through their effects on patient adherence (Simpson et al., 2011; Maher et al., 2012). Other client-related variables have also been found to contribute small but additive effects to predicting ERP outcome (i.e., comorbidity, prior medication trials, and quality of life (Maher et al., 2010)).

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2.2 Efficacy of Exposure with Response Prevention – Meta-Analytic Findings: There have been several quantitative evaluations of the efficacy of ERP for OCD. The first evaluation, by Christensen et al. (1987) showed ERP to be efficacious (mean *d*=1.30). However, at the time of this evaluation, some categories had very few studies for calculation of effect sizes (i.e., live exposure, or exposure in vivo) and all comparisons were against a wait-list control group. Abramowitz (1997) conducted a meta-analysis, at the point where ERP had been compared to "active"[3] control conditions such as relaxation training and found that ERP continued to demonstrate large effect sizes for efficacy compared to relaxation training (mean *d*=1.18). In another meta-analysis (van Balkom et al., 1994) the effect sizes for several different self-report measures and behavioral and observer assessments were generally large regardless of method of outcome evaluation.

Abramowitz (1996) further evaluated the differential efficacy of specific methods of exposure delivery. Studies and approach to conducting exposure were divided into four categories: therapist supervised exposure or independently conducted by client; in vivo or in imagery; stimuli physically presented according to the hierarchy or not; complete or partial ritual prevention. There were several important findings. First, therapist controlled administration of ERP was associated with significantly greater symptom reduction at post-treatment (mean *d*=1.58) and follow-up (mean *d*=1.47)

[3] Relaxation training has been utilized as a credible attention control group; however, it has also been shown that relaxation training has generally a medium effect in reducing anxiety symptoms (Manzoni et al., 2008).

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compared to that conducted independently (i.e., by self-guided interventions) by clients. Second, total response prevention was associated with significantly greater symptom reduction than partial response prevention at post treatment (mean *d*=1.67) and follow-up (mean *d*=1.46). Third, exposure in vivo was significantly more effective when accompanied by imagery that was developed by the clinician to enhance the live exposure (mean *d*=2.76) compared to in vivo alone. Finally, there was no difference in efficacy of symptom reduction for gradual exposure compared to a more rapid increase in stimulus exposure intensity, with both resulting in significant improvement (all mean *d*s > 1.33). Recent analyses have continued to support the efficacy of in vivo with imaginal exposure for OCD compared to either wait list or attention control groups (mean *d*=1.30)(Rosa-Alcázar, et al., 2008). Rosa-Alcázar, et al. (2008) also showed that therapist-guided ERP produced substantial benefits on measures of depression in OCD (mean *d*=0.78).

2.2.1 Summary of Exposure with Response Prevention Meta-Analytic Findings: Over the past several decades, considerable research has accumulated to show that ERP is an efficacious intervention for OCD. The method of delivery is important with in vivo therapist –assisted ERP, in conjunction with imagery, producing the greatest change in symptom severity. At the same time, there is a range of outcomes (due to aforementioned factors such as patient adherence to therapy) ranging from recovery, minimal residual symptoms, partial response, or little benefit in some cases. As these and other authors have pointed out, RCT's are generally time-limited and manualized, however, an optimal trial of CBT for OCD requires considerably longer than three

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months. A major difficulty with RCT's in this field is that "recovery" rates are insufficiently examined and have not yet been standardized (please see below for examination of recovery rates). Further, although evidence based treatments are available there is a well-documented and urgent shortage of professionals qualified to deliver these.

3. Cognitive Therapy

Cognitive therapy (CT) developed from the position that specific dysfunctional beliefs promote problematic behaviors. The philosophical roots arise from Epictitus, who postulated that no event is good or bad, only our statements regarding the event makes it good or bad (Ellis, 1994). The theoretical basis of this model, that cognition precedes behavior (Lazarus, 1984) sets the stage for CT. The essential feature of treatment is the identification and modification of dysfunctional appraisals of intrusions and symptom-related beliefs in order to impact problematic behavior (Beck, Rush, and Shaw, 1979). Measures of different "levels" of cognition characteristic of OCD have been developed and are widely used to assess pre-treatment and cognitive changes following treatment : The Interpretation of Intrusions Inventory, Obsessive Beliefs Questionnaire (Obsessive Compulsive Cognitions Working Group, 2001, 2003), and Vulnerability Schemata Scale (Sookman, Pinard, and Beck, 2001).

3.1 Hypothesized Action of Cognitive Therapy Efficacy, and Barriers to Implementation: There are several cognitive models of OCD (detailed in Taylor, Abramowitz, and McKay, 2007). While all emphasize symptom reduction, some recent models also incorporate

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methods that focus on identity, values, attachment style and/or alternative cognitive styles (Guidano and Liotti, 1983; Doron and Kyrios, 2005; Bhar and Kyrios, 2007; O'Connor et al., 2009; Twohig, 2009; Sookman and Steketee, 2010). However, the model described by Salkovskis (1985) is the best known. In this approach to treating OCD, identification of a higher order cognitive process referred to as inflated responsibility is the target for change. Inflated responsibility is germane to the disorder by way of a system of appraising the significance of thoughts.

Experimental tests of this appraisal model have been supportive of the relation between inflated responsibility and emotional reactions. For example, Lopatka and Rachman (1995) found an association between the level of perceived responsibility for actions and checking behaviors. The effect of inflated responsibility in influencing obsessive-compulsive behaviors has been replicated, and is especially pronounced in individuals with OCD and checking compulsions (Foa et al., 2002).

Additional clinical observations have revealed that many OCD sufferers report varied appraisals of intrusions, and symptom – related dysfunctional beliefs that do not involve inflated responsibility (e.g., washers who "feel" contaminated or experience disgust without fear of contracting or spreading illness). Several other appraisals/beliefs have been identified, that include: overestimation of threat; overimportance of thoughts; intolerance of uncertainty; importance and control over thoughts; and perfectionism (Obsessive Compulsive Cognitions Working Group, 2001, 2003). These cognitive appraisals extend to evaluations of the implications of having specific thoughts (i.e., obsessions). For example, individuals with intrusive aggressive thoughts may then

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evaluate the significance, meaning, perceived threat, and feared consequences of having aggressive thoughts. These belief domains and associated appraisals are considered central in the contemporary CT methods for OCD (Wilhelm & Steketee, 2006). Based on this description it is important to recognize that CT for OCD is specific when compared to the more general CT developed originally by Beck et al. (1979), for example, emphasis on appraisals of thoughts. To illustrate, guiding a patient with OCD to the conclusion that an intrusive unwanted thought of harming a loved one does not confer a risk that they will in fact cause harm to the individual is unique to CT for OCD. As part of this model, some protocols of CT for OCD involve behavioral experiments, whereby the patient practices engaging in a clinician-guided exercise designed to activate and disconfirm symptom-related dysfunctional beliefs. Therefore in the example of unwanted harming thoughts, the patient may engage in a behavioral exercise where he/she holds a knife to a photo of a loved one and considers then the relative change in risk of harm befalling the loved one.

3.2 Efficacy of Cognitive Therapy for Obsessive-Compulsive Disorder – Meta-Analytic Findings: Cognitive therapy specifically tailored for OCD has not been available for as long as ERP, and so the number of treatment trials is fewer, in turn leading to fewer meta-analytic evaluations. However, prior to the advent of a theoretically guided specific CT for OCD, treatment trials employing CT (as described, for example, by [Beck et al., 1979]) were conducted and summarized by van Balkom et al. (1994). The notable limitation in the conclusions to be drawn from these studies is that virtually all were

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evaluations of CT with ERP[4], making the unique effects of CT difficult to determine. However, the van Balkom et al. evaluation shows that there is a small and nonsignificant additional symptom improvement associated with the inclusion of standard CT to ERP.

Since that time, there have been enough trials conducted using CT based on the aforementioned cognitive model of OCD that meta-analyses could be conducted. Of note, Rosa-Alcázar et al. (2008) showed that this form of CT was associated with larger effect sizes when compared to all control groups (waitlist and attention control) (mean *d*=1.09), and was not significantly different from ERP alone (mean *d*=1.13, nonsignificant in direct comparison). However, as the authors' point out, the effect size estimate for CT was derived from only three comparisons of treatment versus control groups. Additional research has suggested that CT for OCD is efficacious compared to wait-list control groups (Wilhelm et al., 2009; Belloch et al., 2010; Olatunji et al., 2013). While additional research is required to examine the efficacy of CT the available evidence base indicates that CT should not be used on its own as a first-line treatment for OCD at this point; however, CT can be helpful when administered prior to and in combination with ERP in order to optimize change in patients' symptom related difficulties including dysfunctional beliefs, tolerance of distress, improve adherence to treatment, and reduce drop out. One recent study (Olatunji et al., 2013) showed that symptom reduction was faster with ERP than with CT, and that both groups were significantly improved at one-year follow-up.

[4] Behavioral experiments in CT for OCD reflects a specific type of intervention, where the desired goal is activation and disconfirmation of beliefs during sessions. In many early studies, ERP was conducted during some sessions, and CT (as described by Beck and colleagues [1979]) during others. We have made every effort to be clear about this important distinction in describing the relative efficacy of different CBT methods for OCD.

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4. Variations in Treatment Implementation

There are some points of ambiguity between ERP and CT that deserve attention. For example, ERP may be conducted whereby the clinician aids the patient in coming in contact with feared stimuli or situations followed by simply waiting until the anxiety subsides, in the purely *in vivo* format. On the other hand, ERP where the clinician includes, during the exposure, imagery designed to focus on catastrophic outcomes is considered the most effective format (Abramowitz, 1996). The approach where *in vivo* plus imaginal exposure is employed is designed to fully activate the fear structure to hasten habituation. It should be noted, however, that some patients are unable or unwilling to engage in imaginal exposure and this approach may not be equally suitable for all symptom subtypes. For example, washers may fear contamination only when confronted with feared stimuli in vivo, whereas individuals with checking compulsions may experience concerns over catastrophic consequences long after exposure is completed (Radomsky et al., 2010). There is one evaluation that suggests exposure alone produces significant change in the cognitions associated with the disorder, regardless of symptom type. In Belloch, Cabedo, and Carrio (2008), with a sample of thirty-three individuals with OCD randomly assigned to either ERP or CT alone, the authors found significant improvement in both groups, with slightly better outcome for CT. However, of particular note in this case is that both groups showed similar levels of improvement on measures of appraisals (evaluated with the OBQ – 44, Obsessive compulsive cognitions workgroup, 2005) associated with OCD. In a more specific test of

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whether cognitions change following ERP, Overton and Menzies (2005) treated a sample of fourteen clients with checking symptoms. All clients received twelve sessions of ERP. In addition to symptom ratings, all clients completed an investigator-designed assessment of the major cognitive appraisals noted earlier (inflated responsibility, overestimation of threat, overimportance of thoughts, intolerance of uncertainty, importance of having control over thoughts, and perfectionism). The authors found that, while there was significant improvement on all symptom measures, participants generally remained the same on measures of cognitive appraisals associated with the disorder.

Finally, in a direct evaluation of CBT versus ERP, Whittal, Thordarson, and McLean (2005) found that improvement was associated with a reduction in obsessive-compulsive beliefs, regardless of treatment approach employed. This was observed when participants were assessed at pretest and posttest using the Obsessive Beliefs Questionnaire-44 (OCCWG, 2005) and the Interpretation of Intrusions Inventory (Frost and Steketee, 2002). Again, these measures were developed to specifically evaluate hypothesized cognitive variables considered functional mechanisms underlying obsessions and the associated appraisal process.

In summary, based on the available evidence, there appears to be value in a range of approaches to conducting treatment for OCD, whether ERP and/or cognitive therapy with behavioral experiments depending on subtype characteristics. Indeed, as noted earlier, there is considerable overlap between ERP with disconfirmatory rationales and cognitive therapy combined with behavioral experiments (for discussion,

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see Abramowitz, McKay, & Taylor, 2005). Patients initially unable to participate in ERP should be offered cognitive therapy approaches specifically developed for OCD that may reduce intransigent beliefs, intolerance of distress, and risk aversion. Given the heterogeneity of symptoms in OCD, additional research is required to determine which approach is most suitable to what symptoms as well as further development and examination of strategies to achieve sustained improvement and recovery.

5. Practical Aspects of Treatment Delivery

5.1 Durability of Treatment Gains: The research on the long lasting effect of ERP and CT on OCD is limited, although all the aforementioned meta-analysis (Rosa-Alcázar et al., 2008) cited follow-up efficacy with large effect sizes. Further, Ougrin (2011) showed that ERP and CT were each associated with large effect sizes at follow-up (6 months or more posttreatment), although this was based on data from five studies. Absent from these analyses have been systematic evaluations of the duration of follow-up and its relation to outcome. However, the available data, while limited, is encouraging. DiMauro et al. (2013) reported on three benchmarking studies where long-term (one year) data were reported with large effect sizes (d>1.33). In the DiMauro et al. report, long-term efficacy (one year post treatment) was found in a general outpatient setting for a subgroup of individuals with OCD. In studies examining either ERP or ERP with medication, patients who respond to treatment tended to sustain their improvement at follow-up. For example, Simpson et al. (2004) found that patients with OCD who received and responded to ERP or ERP with clomipramine were

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maintained at three-month follow-up. Recent research continues to support the durability of ERP at one year posttreatment (Olatunji et al., 2013).

In similar fashion, the extant data suggest that treatment gains from CT are durable. Van Oppen et al. (2005) found that, at five-year follow-up, 54% of patients with OCD who received either ERP or CT did not meet criteria for the disorder. They found that there was no significant difference in level of long-term improvement between the ERP and CT groups. Whittal et al. (2008) also found that treatment was durable, for CT and ERP, at two year follow up for patients with OCD, on measures of obsessive-compulsive symptoms as well as for ancillary depression symptoms. Additional recent research supports the long-term durability of the efficacy of CT on primary OCD symptoms as well as associated symptoms such as depression (Wilhelm et al., 2009; Belloch et al., 2010), where symptom remission was observed at one-year follow-up

Several studies have reported response to combined treatments using the most stringent criterion for recovery of YBOCS ≤ 7 at post treatment, that is, no longer meeting criteria for OCD. In an early study of longer therapy duration, Sookman and Pinard (1999) reported recovery on symptoms, related beliefs, and depression of a case series of seven patients who had been previously unable to collaborate in ERP (mean duration previous CBT of 2 years). Treatment consisted of an average of 10 months of cognitive therapy administered prior to and during ERP. Follow-up at nine months to two years indicated good maintenance of improvement. Simpson et al., 2006 reported that 37% (7 out of 19) of patients who received three months of cognitive behavior

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therapy (CBT) plus Anafranil had recovered. Belloch, Cabedo & Carlo (2008) examined the efficacy of 6 months of ERP compared with cognitive therapy with 29 OCD patients. Also using the post-treatment criteria of YBOCS ≤ 7 (and at least 6 points improvement), 8/13 (61.53%) in the ERP condition and 11/16 (68.75%) were recovered at post treatment. With the exception of one case in each treatment group, these results were maintained at one-year follow-up.

In summary, the long-term efficacy data suggest that treatment using ERP and CT are durable. Further, based on the analysis in DiMauro et al. (2013) using a combination of benchmarking data and research from a general anxiety clinic, ERP and CT may be delivered in a general practice setting. To further illustrate the ability to deliver cognitive-behavioral treatment in a general setting, Houghton et al. (2010) examined a naturalistic sample of individuals seeking treatment for OCD. A total of 37 patients were treated by eight therapists all trained in CBT for OCD, with results benchmarked against existing RCTs for the condition. At posttreatment, patients improved an average of 45.5% for acute OCD symptoms assessed with the Y-BOCS. No other symptom measures were reported. The authors concluded that in routine clinical practice employing CBT, patient outcomes are comparable to that obtained in standardized clinical trials. The sample in this study was variable, with the majority (86.5%) presenting with comorbid conditions. The most effective methods of dissemination of expertise by specialists to community sites require further examination, and are among the crucial mandates of the CIOCD Accreditation Task

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Force. Of course, it should be recognized that an average symptom decrease of 45.5% leaves much to be desired with respect to treatment outcome for OCD.

5.2 Dimensions of Obsessive-Compulsive Disorder and Treatment Outcome: As noted earlier, OCD is a heterogeneous disorder, generally considered comprised of different symptom dimensions. These dimensions (aggressive, sexual, religious, somatic obsessions) and checking compulsions; symmetry obsessions and ordering, counting, and repeating compulsions; contamination obsessions and cleaning compulsions) require specifically tailored exposure exercises and cognitive therapy approaches to optimize treatment response (Sookman et al., 2005). Interestingly, while treatment for OCD using ERP and/or CT has been available for some time, as evidenced by the number of meta-analyses available for review in this manuscript, relatively little attention has been paid to differential treatment outcome for specific symptoms. A brief review of the available differential treatment findings are presented here.

In one study, Abramowitz et al. (2003; study 2) conducted ERP with 132 clients diagnosed with OCD. After conducting cluster analyses on presenting symptoms, the clients were categorized as reporting primary symptoms as follows: harming, contamination, hoarding, unacceptable thoughts, and symmetry. For the purposes of this discussion the outcome for hoarding will be excluded given the substantial differences in symptom presentation and unique treatment protocols developed for this disorder (Pertusa et al., 2010). Following treatment, differential treatment outcome was shown, whereby clients with symmetry had the best treatment response (76% improvement), followed closely by contamination (70% improvement), with harming

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obsessions (59% improvement) and unacceptable thoughts faring the worst, with 46% improvement.

In a similar study design, Rufer et al. (2006) treated 104 clients diagnosed with OCD using CBT (both ERP and cognitive restructuring). Primary symptoms reported were symmetry/ordering, contamination/cleaning, aggressive obsessions/checking rituals, and sexual/religious obsessions (again, hoarding will be excluded from this discussion for the reason noted earlier). The authors found that those with contamination/cleaning symptoms had the greatest symptom improvement (60%) followed by aggressive obsessions/checking rituals (55.8%), symmetry/ordering (51%), and finally those with sexual/religious obsessions performing poorest (41.7%).

There are a number of compelling explanations for the variable outcome in treatment for different symptom dimensions of OCD. These include: degree exposure exercises are readily designed to target the associated appraisals; logistical barriers to implementing exposure; and the perceived lag between exposure and anticipated outcome (for detailed discussion of these points, see McKay, Taylor, and Abramowitz, 2010). However, none of these possible explanations have garnered any substantive empirical base to draw meaningful conclusions and warrant further investigation.

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6. Barriers to Treatment Delivery

The state of the science of ERP and CT for OCD can be considered well developed at this point. However, there are some important challenges facing clients in receiving proper treatment.

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6.1 Limited Number of Qualified Therapists and Challenges in Delivering Specialized OCD Therapy:

Conducting ERP is demanding for clinicians and a challenge for clients, particularly those who have severe symptoms (Abramowitz, Taylor, and McKay, 2005). There are important misunderstandings about the efficacy, safety, and tolerability of ERP, with clinicians holding these conceptions as much as clients Hembree and Cahill, 2007). Further, both ERP and CT involving behavioral experiments require well-established therapeutic alliance in light of the demands of the clinical exercises (McKay, Arocho, and Brand, in press). Specifically, therapeutic alliance requires that the client and therapist have a sound working relationship with the goals of treatment clearly delineated, and the interventions understood to lead meaningfully to symptom relief. The nature of ERP and CT with the associated behavioral experiments leads to evocation of fear reactions. The degree that alliance is secured would therefore be essential for successful ERP or CT. Indeed, Maher et al. (2012) found therapeutic alliance to be a predictor of treatment outcome in a recent trial of CBT for OCD. At the same time, it has been reported with OCD and other clinical populations that, unsurprisingly, among the strongest predictors of therapeutic alliance is symptom change (Shafran et al., 2009). Further research is required to examine therapist and intervention characteristics, in interaction with patient variables that optimize adherence to treatment that is essential to symptom reduction.

Hembree and Cahill (2007) and others have noted that there is a severe dearth of therapists qualified to deliver exposure based and cognitive therapies in some

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countries. McHugh and Barlow (2010) reviewed several well-developed and carefully implemented programs designed to improve the clinicians' reliance on empirically supported methods. The results were discouraging, with many clinicians improving in their treatment delivery shortly after the training, but soon after returned to the former and less empirically-based method of therapy.

As a means of combating the problem of limited reliance on empirically supported methods in treatment, Klepac et al. (2012) developed a blueprint for doctoral training in clinical psychology that emphasizes the essential elements to practice using scientific grounded methods. However, there are insufficient doctoral programs in Canada and the US that offer an elective rotation in specialty treatments for OCD.

Aside from training at the doctoral level or the implementation of specific training programs tailored to specific disorders, policies have been implemented in some countries that require specific training in order to treat OCD (as well as other mental health conditions). To cite one prominent example, the National Institute for Health and Clinical Excellence (2005) outlines general procedures necessary for assessing and treating OCD, and includes recommendations for specific levels of care based on severity. These guidelines include specific components for educating patients about specific aspects of the condition, the extent to which obsessions are experienced in the general population, and information about the types of obsessions that are typical for sufferers of OCD. The portion regarding symptom dimensions includes contamination fears/washing compulsions; checking; intrusive thoughts regarding harming others, sexual behaviors, and religiosity; obsessional slowness; and

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symmetry/ordering obsessions and compulsions. The guidelines go on to recommend different levels of care, with specific numbers of sessions or therapist contact hours based on severity and tolerance for ERP. These recommendations describe the necessary qualifications of therapists to deliver services to individuals with OCD. The formation and implementation of the National Institute of Clinical Excellent (NICE) guidelines has been hailed as the largest and most ambitious provision of mental health services undertaken to date (Piling, 2012). Evaluations of the efficacy of this program have shown promise in improving the level and access to proper care for OCD (Drummond et al., 2008; Clark, 2011).

Additional educational and training programs are needed in primary through tertiary care settings to improve early detection, accurate diagnosis, and appropriate timely referral. In our view, certification and accreditation in specialty treatments for OCD is the next crucial step required to achieve transformative international impact on care for this disorder, to meet the urgent treatment needs of OCD sufferers. Development of certification criteria will entail detailed operationalization by the CIOCD expert Accreditation Task Force of essential specialty assessment and treatment competencies, didactic, clinical and supervisory processes of dissemination of these competencies, and criteria for professional candidacy (please see Sookman and Fineberg, Introduction, this series).

6.2 Resistant and Refractory Case Presentations: A subset of OCD sufferers is classified treatment non-responders, namely as either resistant or refractory to all empirically based treatments, CBT or medication. Consensus in definition of what

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constitutes either refractory or resistant has not been developed at this point, and there are several competing conceptualizations in the literature (discussed in Tolin et al., 2004). Refractory or resistant cases typically refers to clients who have sought out, and participated in (albeit not fully), properly developed CBT for OCD, and yet failed to benefit from treatment. It has been estimated that approximately 30% of OCD sufferers fail to respond to any empirically based intervention, including psychopharmacotherapy (Schruers et al., 2005).

Several studies have examined a variety of definitions for treatment non-responder. For instance, Tolin et al. (2004) defined psychopharmotherapy nonresponders as any OCD sufferer who failed to benefit from at least two adequate trials of medications used to treat the condition. However, more extreme definitions of nonresponder have been offered, with the most severe being offered by Jenike and Rauch (Jenike and Rauch, 1994). In this case, nonresponder was defined as any OCD sufferer who failed to benefit from any therapeutic intervention developed for the disorder. Consideration of stepped care models such as that described in the NICE guidelines (2005) provides recommendations for more intensive treatment and a team-based approach to treating nonresponders.

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7. General Recommendations and Future Directions

The research reviewed in this article highlights several important dimensions of how to conceptualize and execute treatment for OCD. While the growth of the treatment literature for OCD has been impressive since Meyer (1966) first employed

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ERP with two clients with the condition, there are a number of important limitations in our knowledge of treatment. In light of the abundance of evidence supporting the application of ERP, this treatment should be predominant in first-line evidence based psychological interventions for OCD. Cognitive therapy has demonstrated efficacy and, as discussed above, at this point in order to address the heterogeneity and complexity of the OCD most experts recommend that CT should be administered in combination with ERP. CT with ERP can be administered with comparable aims of CT with behavioral experiments (McMillan and Lee, 2010). The primary distinction is that CT with behavioral experiments aim to actively challenge the appraisals while they are most relevant to the client. CBT, comprising CT and ERP, also often aims to address and modify the OCD-related fear structure and address the hypothesized underlying cognitive features of the disorder.

Despite the success of ERP, there are limitations. First, as noted previously, adherence to treatment hinders outcome (Maher et al., 2010; Simpson et al., 2011; Maher et al., 2012; Simpson et al., 2012). Further, while those who complete treatment typically have good outcome, many patients with OCD either fail to initiate treatment or drop out, which has in turn led to the recommendation of adding CT to the treatment protocol (Daflos and Whittal, 2012). Finally, problems remain in understanding how to best improve symptoms for several major dimensions of the disorder. Notably, some forms of checking and sexual or religious obsessions remain a significant challenge for treatment. Checking is a well-known and common symptom of the disorder, and represents a significant proportion of participants in treatment trials (Ball, Baer, and

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Otto, 1996), however, the heterogeneity of appraisals and neutralizing strategies reported by checkers (Foa and Kozak, 1986) highlights the need for further research on more difficult to treat dimensions. Additionally, a search of the literature revealed no systematic examinations of how to treat religious and/or sexual obsessions. Other complicating factors, such as overvalued ideas (Foa and Kozak, 1986; Kozak and Foa, 1994) likewise merit systematic examination in order to devise interventions for the full range of clinical presentations of the disorder. Figure 1 illustrates the relationship between the recommended first line treatment and the additional suggestions based on the limited research for the aforementioned unique symptom presentations.

Fortunately at this point we are able to treat and provide symptom relief to a large percentage of OCD sufferers and associated symptoms, such as depression (Olatunji et al., 2013) and personality disorders (Dettore, Pozza, and Coradeschi, 2013). Approximately 50% of OCD sufferers benefit from ERP alone (e.g., Foa et al., 2005). Patient treatment adherence (Simpson et al., 2011) warrants further examination since it is not yet clear how to improve outcome in the non-adherent patient. Further, recent findings suggest that many clients drop out because of fears of conducting exposure, and inaccurate beliefs about methods of implementation prevent many clients from initiating treatment or remaining in treatment until symptoms remit (Mancebo et al., 2011). A summary of our recommendations for treatment is also presented in Figure 2.

First, while we have highlighted the theoretical and intervention differences that are hypothesized to underlie CT and ERP, there is sufficient evidence that the bidirectional relationship between the two interventions (cognitive change leads to

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behavioral improvement; exposure leads to cognitive change) makes the distinction unnecessary. Case conceptualization, clinical setting, symptoms subtypes and severity, and clinician characteristics may contribute to decisions about the method of administering treatment.

Second, careful assessment for adherence is essential throughout the course of treatment. This is an important component of effective treatment (Simpson et al., 2011), and every effort should be made to assess the varied reasons for resistance treatment (e.g., fear of illness, calamity, or distress, risk aversion, etc.) and to further develop interventions to address adherence to the demands of CBT. In addition to clinical interview, administration of the Patient ERP Adherence Scale (PEAS; Simpson et al., 2011) is recommended to assess levels of adherence and whether additional intervention is necessary to foster improvement. Recent efforts to improve adherence have not yet shown success (such as with Motivational Interviewing, MI [Simpson et al., 2011]) and therefore, further research into methods to improve adherence are warranted. The specific factors that may affect resistance during CBT for OCD require examination. Intransigence of symptom related dysfunctional beliefs, intolerance of distress, risk aversion, and difficulty with sustained adaptive learning are other factors that may impact collaboration and outcome. For discussion and illustration of the complexity and diversity of hypothesized reasons for resistance during CBT for OCD, see Sookman and Steketee, 2010.

Third, severity of symptoms often warrants greater intensity and therapist – assistance during treatment. Many patients do not respond to in office ERP because

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their fears occur only at home, at school/work, or in public places and/or are able to initially participate in ERP only when assisted by the therapist. In our view, among the serious difficulties with "stepped care" approaches is that this model of intervention may be utilized primarily due to paucity in many regions of clinicians sufficiently trained and experienced with empirically based specialty CBT for OCD, rather than predicated on empirically based rationale for determining level of care necessary based on severity of symptoms. Recent efforts to deliver treatment to a wider range of patients, using internet delivered approaches, has had some success and could provide promise in alleviating symptoms in individuals who do not live near recognized providers. To illustrate, in one recent trial Andersson et al. (2012) treated a large sample (n=101) with a ten week internet delivered CBT program compared to a control group and found significant improvement (d=1.12) in symptoms.

A crucial priority for further clinical research is examination of the specific therapeutic ingredients that impact outcome and optimize recovery for different OCD symptom subtypes. Most published treatment trials of CBT are short term. As Steketee et al., (2011) and other authors have noted, longer term therapy is often indicated for more severe cases. Importantly, immediate treatment at a tertiary care specialty OCD Clinic may avert progression to chronicity, disability, and intransigence of symptoms for initially mildly ill sufferers. A major challenge for the future is to improve recovery rates following treatment for OCD, as defined by no longer meeting diagnostic criteria for OCD (e.g., YBOCS = or < 7, [Sookman and Steketee, 2010]). This may necessitate prompt and non-time limited specialty treatment in the hands of an OCD expert as soon as

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possible following symptom onset. Given that OCD is a severe, debilitating disorder, and given the current availability of effective evidence based treatments, the paucity of qualified specialists is a central issue in the field. Dissemination of expertise in available evidence based treatments for OCD is urgently required.

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Disclaimer: The advice we are providing is as accurate and comprehensive as possible but it is only general advice and it is up to clinicians reading this paper to make their own clinical judgment when interpreting the information and deciding how best to apply it to the treatment of patients. Patients should not use this information as a substitute for the individual advice they may receive from consulting their own doctor.

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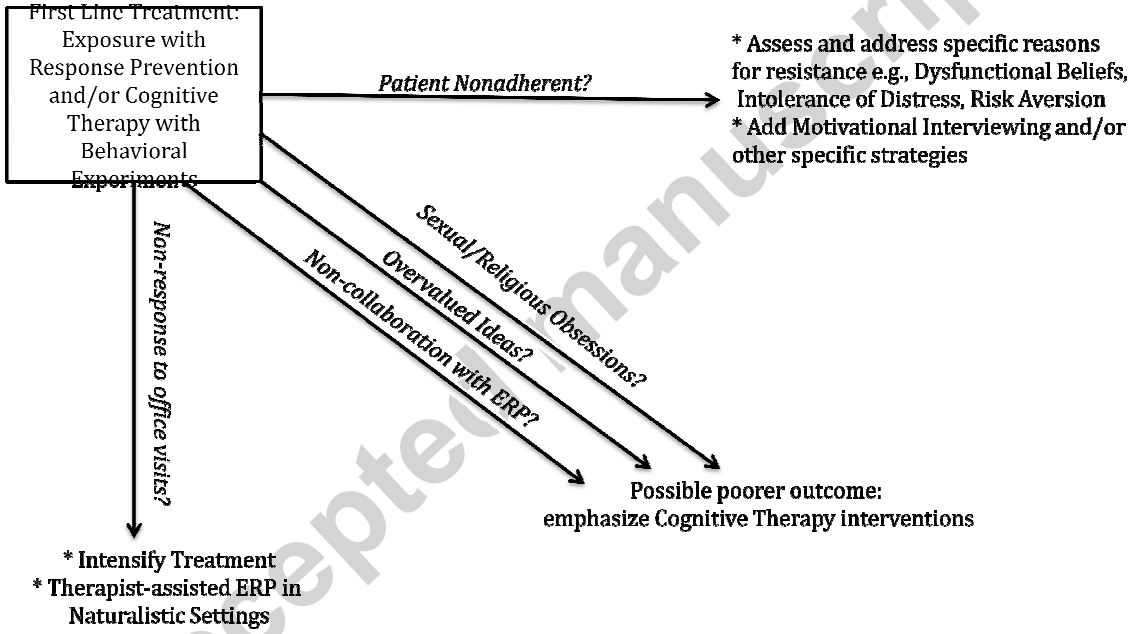
Highlights

- Cognitive Behavior Therapy (CBT) has been examined and established as a well supported treatment for Obsessive-Compulsive Disorder (OCD)
- The availability and delivery of CBT has not been matched by its established efficacy
- A review of the efficacy, complications in treatment delivery, and prognostic barriers to outcome is provided.
- Recommendations are made to improve and expand treatment delivery for OCD

Figure 1. Treatment Recommendations and Domains Requiring Additional Investigation



Note: Each arm of recommendations call for additional research. Recommendations made here Based on the limited literature regarding the specific presenting features noted

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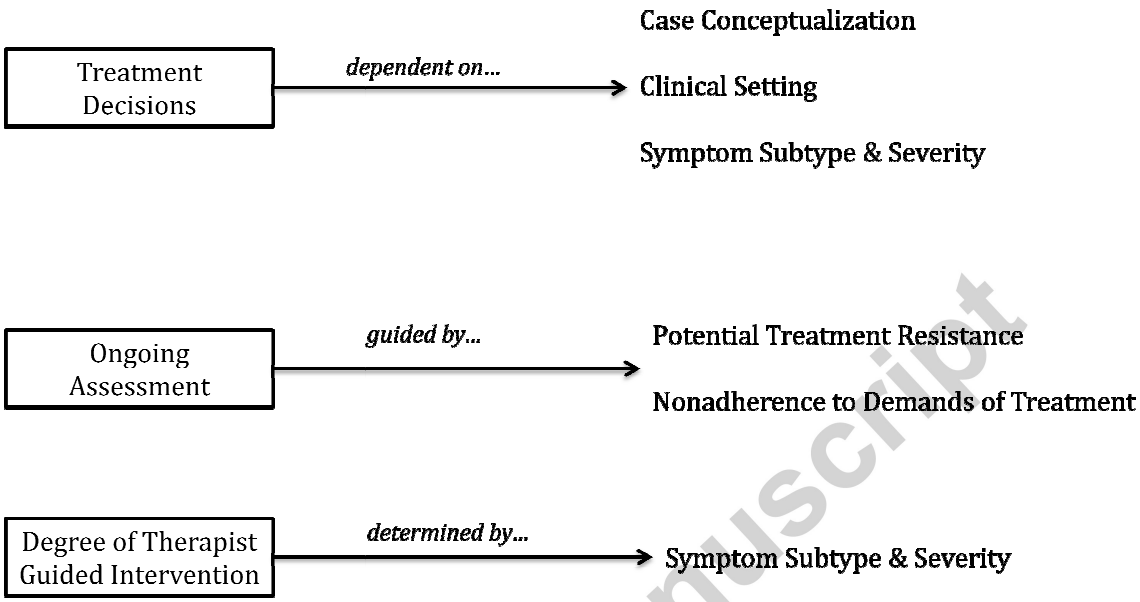
Figure 2. Recommended Treatment Decision Processes



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