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# PREDICTING PATIENT DROPOUT FROM AN OBSESSIVE-COMPULSIVE DISORDER TREATMENT PROGRAM

By

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**THESIS APPROVAL PAGE**

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Abstract

PREDICTING PATIENT DROPOUT FROM AN OBSESSIVE-COMPULSIVE DISORDER TREATMENT PROGRAM

Jenna Ewing

Although exposure and response prevention (ERP) is an effective intervention for obsessive-compulsive disorder (OCD), it is often accompanied by patient dropout. The literature on predictive factors for dropout is inconclusive. The current sample consisted of 103 patients from the Houston OCD Program who had a primary diagnosis of OCD. Chi-square analyses were conducted to examine the effect of ethnicity, education level, and level of care on dropout. Multiple *t*-tests were carried out to examine whether OCD severity, depressive symptom severity, insight, and avoidance tendencies influenced dropout. Caucasian individuals were significantly more likely to complete treatment. Moreover, those who participated in the residential program were significantly more likely to complete treatment. Those who dropped out were also more likely to engage in cognitive reappraisal, which is associated with avoidance tendencies. Future research should include a larger sample size. Researchers should explore symptoms measured just before termination as opposed to at pre-treatment.

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# Predicting Patient Dropout from an Obsessive-Compulsive Disorder Treatment Program

Individuals with obsessive-compulsive disorder (OCD) are characterized as having obsessions and compulsions, the former of which refer to excessive and unpleasant images, ideas, or urges that generate marked anxiety (American Psychiatric Association, 2013). Common obsessions include contamination, doubtfulness, a concern for establishing and maintaining order, and sexual or aggressive intrusions (American Psychiatric Association, 2013). For example, some individuals may obsess over germs and the thought of becoming ill; others may obsess about ideas of harming a loved one. Anxiety and other negative emotions, such as disgust, generated by these obsessions are usually neutralized, prevented, or minimized by compulsions, which refer to recurring behaviors or mental acts. Typical compulsions include checking, ordering, repeating actions, counting, and washing (American Psychiatric Association, 2013). Some individuals may wash their hands up to several hours per day or repeatedly engage in routines such as walking through doorways. Although the purpose of compulsions is to relieve distress, this relief is not long lasting; the obsession is likely to persist, which encourages the individual to engage in additional compulsions (American Psychiatric Association, 2013).

Several cognitive-behavioral therapy (CBT) approaches exist for individuals with OCD, including exposure and response prevention (ERP; Kozak & Foa, 1997) and cognitive therapy (Wilhelm & Steketee, 2006), both of which have been deemed efficacious for the disorder (Ponniah, Magiati, & Hollon, 2013). Despite the anxiety-provoking and confrontational nature of ERP, which challenges OCD patients to be exposed to various anxiety-provoking stimuli and situations, ERP is one of the best established interventions for OCD (Himle & Franklin, 2009). It is often considered superior to other interventions in the treatment of OCD, such as stress management (Whittal, Woody, McLean, Rachman, & Robichaud, 2010), anxiety management

(Lindsay, Crino, & Andrews, 1997), and progressive muscle relaxation (Marks et al., 2000; see Ponniah et al., 2013, for a review). Exposure and response prevention even has long-term effects, including improvement of symptoms for up to five years after ERP has ended, which cannot be said for pharmacological treatments of OCD (Ponniah et al., 2013; Fals-Stewart, Marks, & Schafer, 1993; Rowa et al., 2007; van Oppen, van Balkom, de Haan, & van Dyck, 2005; Vogel, Stiles, & Gotestam, 2004). Exposure and response prevention is currently considered the treatment of choice (Basco et al., 2000; Task Force on Promotion and Dissemination of Psychological Procedures, 1995; Hill & Beamish, 2007), as it maintains a success rate of 70-92% (Abel, 1993). Post-treatment, ERP is associated with at least "improved" symptoms in 85% of patients, while 55% of patients say that their symptoms were either "much improved" or "very much improved" as a result of the treatment (Jenike, 2004; Steketee & Frost, 1998), and improvement rates were generally maintained at follow-up (Jenike, 2004; Steketee & Frost, 1998; Marks, Hodgson, & Rachman, 1975).

Although ERP is largely effective for OCD patients who can overcome its confrontational and anxiety-provoking nature, one major obstacle in the delivery of effective services is the issue of premature treatment termination. Patients with OCD usually find ERP to be an emotional and difficult treatment, with about 25% of individuals refusing to participate in ERP and 25% of patients dropping out once treatment has started (Jenike, 2004; Schruers, Koning, Luermans, Haack, & Griez, 2005). Indeed, the refusal and dropout rates for ERP in OCD are higher than for other interventions (Radomsky, Shafran, Coughtrey, & Rachman, 2010). By not completing treatment, patients with OCD in particular are likely to have poor quality of life and significant impairments in life functioning (Koran, 2000; Norberg, Calamari, Cohen, & Riemann, 2008), as well as marital distress and interpersonal conflicts (Emmelkamp,

de Haan, & Hoogduin, 1990; Riggs, Hiss, & Foa, 1992). Aside from the problems it causes for individual patients who are no longer receiving necessary services, patient dropout causes a wide range of other clinical, morale, and financial problems for professionals in the mental health field (Aderka et al., 2011; Ogrodniczuk et al., 2005; April & Nicholas, 1996; Pekarik, 1985).

As a way to reduce or prevent the pervasive problems that stem from premature treatment termination, investigators have sought to identify factors that predict patient dropout. According to existing research literature, treatment dropout may be moderated by important factors like the patient's age (i.e., child versus adult; Warnick, Gonzalez, Weersing, Scahill, & Woolston, 2012), patient's clinical diagnosis (e.g., OCD versus depression; Hamilton, Moore, Crane, & Payne, 2011), and treatment approach (e.g., ERP versus cognitive therapy; Warnick et al, 2012; Hembree et al., 2003). General factors that may predict treatment attrition include symptom severity and demographic variables (Gonzalez et al., 2011; Hamilton et al., 2011; Wierzbicki & Pekarik, 1993; Kendall & Sugarman, 1977). For the most part, the nature of the research evidence for predictors of psychotherapy dropout is mixed and inconclusive. Discrepant findings concerning some variables may be due to differences in how treatment dropout is defined across studies (e.g., after intake, after the first session, etc.), differences in sample characteristics (e.g., child versus adult, outpatient versus inpatient treatment), and measures used to assess symptoms (Chasson, 2005).

Aside from differences in symptom severity and demographic variables, there are other factors that may contribute to treatment dropout in adults with OCD in particular. In a study of adult OCD patients, those who dropped out of treatment were found to be different in at least five regards: 1) patients who dropped out had less severe OCD symptoms at pre-treatment than those who completed treatment, 2) dropouts had more incongruent expectations about treatment

(e.g., found homework assignments a nuisance), 3) patients who dropped out were more critical of the therapist (e.g., describing the therapist as a baby-sitter), 4) dropouts reported less anxiety about homework assignments, and 5) patients who dropped out of treatment did not report as much pressure by loved ones to stay in treatment (Hansen, Hoogduin, Schaap, & de Haan, 1992). Adult patients who have less severe OCD at intake may be less motivated and committed to treatment and, thus, be more likely to drop out of treatment due to anxiety-provoking exposures, troublesome homework assignments, and treatment experiences generally not meeting their expectations (Hansen et al., 1992).

In the majority of studies, the focus is not on specific differences between treatment dropouts and completers, although analyses are generally conducted in treatment outcome studies to determine if these two groups differ significantly on demographic and severity variables. In a study on the effectiveness of ERP, Franklin et al. (2000) found that adult OCD patients who dropped out of treatment were no different from those who completed treatment in terms of pre-treatment obsessive-compulsive severity, pre-treatment depression severity, and demographics such as marital status, education, employment status, and ethnicity. Conflicting evidence, however, suggests that some OCD patients who drop out of treatment may have higher pre-treatment depression severity than other patients (Aderka et al., 2011). In another study on the effectiveness of ERP and clomipramine, Foa et al. (2005) found that patients who dropped out of treatment did not differ significantly from completers in terms of OCD symptom severity. Notably, however, of the 20 patients receiving ERP who dropped out, nine patients reported either disliking the exposures or wanting to stop the exposures as their primary reason for dropping out. Other reasons included medication side effects or non-compliance or perceived worsening of OCD symptoms (Foa et al., 2005).

Some variables have yet to be considered as possibly being associated with treatment dropout in OCD patients. Considering the extent to which individuals avoid unpleasant thoughts or emotional states may be essential in understanding treatment dropout in individuals with OCD, as participation in ERP is often the crux of psychological treatment for this disorder. The nature of ERP, which is inherently anxiety-provoking and challenging, may cause individuals who are more avoidant of unpleasant thoughts or emotional states to feel substantial anticipatory anxiety about conducting exposure exercises, resulting in avoidance of the exposure exercise altogether and, ultimately, termination from treatment too soon. A study of child victims of violence receiving exposure-based treatment revealed that increased avoidance behavior measured just before the patient dropped out of treatment was associated with significantly fewer treatment sessions for the child (Chasson, Vincent, & Harris, 2008). However, given the complex nature of youth treatment dropout (de Haan et al., 2013), comparisons cannot necessarily be drawn from a child to an adult sample (Chasson, 2005). Additionally, although they did not include a psychometrically valid measure of avoidance behavior, Foa et al. (2005) suggests that nearly half of adult OCD patients reported dropping out of ERP because they either disliked or wanted to stop the exposure (Foa et al., 2005). Because adult OCD patients have been shown to sometimes refuse or drop out of ERP given its anxiety-provoking nature (Schruers, Koning, Luermans, Haack, & Griez, 2005; Jenike, 2004), it is important to understand the possible association between avoidance behavior and treatment dropout in this group.

Yet another concept that is seemingly related to adult OCD patient dropout is insight. Insight refers to the extent to which an individual is aware of the irrationality of his or her obsessive-compulsive symptoms, with individuals at one end of the continuum being completely aware that his or her symptoms are irrational, whereas other patients lack that awareness (APA,

2013; 2000; Neziroglu et al., 2013). As a person with OCD believes his or her ideas are more realistic or accurate, his or her insight becomes worse, which is in contrast to other OCD patients who know that their obsessions and compulsions are senseless and report that the probability of a feared consequence coming true is actually quite low. In a study of four OCD patients, Foa (1979) suggested that those with poor insight had a poorer response to behavioral therapy. Poor insight in OCD groups was also examined by Santana, Fontenelle, Yucel, and Fontenelle (2013), Kishore et al. (2004), and Eisen et al. (2001), who similarly found that OCD patients with poor insight had a less favorable response to drug treatment. Overvalued ideation (the midpoint on a continuum between delusions and rational thoughts; Neziroglu et al., 2013), which is arguably similar to insight (Eisen et al., 2001), has also been shown to contribute to treatment dropout in OCD patients (Veale, 1999).

Overall, much remains to be determined about what specific variables contribute to treatment dropout, especially for OCD patients. Until the state of the research literature is no longer as ambiguous, clinicians cannot monitor individuals who may be at risk for dropping out of treatment. By exploring variables that may contribute to psychotherapy attrition, we hope to add to the research literature about treatment dropout based on OCD severity, depression severity, insight, and demographic variables. Of note, the majority of research on treatment attrition has been completed in outpatient settings (de Haan et al., 2013; Warnick et al., 2012; Aderka et al., 2011; Gonzalez et al., 2011; Hamilton et al., 2011; Wierzbicki & Pekarik, 1993; Hansen et al., 1992), as research in residential settings is especially difficult for several reasons (e.g., time commitment required of patients, more complex diagnostic presentations; Björgvinsson et al., 2013). To our knowledge, this was the first study to investigate these variables in a residential treatment and Intensive Outpatient Program (IOP) for OCD patients.

We also aimed to extend the existing literature by looking at a new variable, degree of avoidance, which has not yet been studied as possibly contributing to treatment dropout in an adult OCD sample. To address the void in the research literature on treatment attrition in OCD, the current study focused on various predictors of premature treatment termination from a residential and intensive outpatient treatment center.

1) *Demographic variables* (education level and ethnicity): We predicted that those with lower education levels (i.e., completed some high school, achieved high school degree, attended some college) were more likely to drop out than those with higher education levels (i.e., obtained a postsecondary degree such as a technical or Associate's degree, a Bachelor's degree, a Master's degree, a Doctoral degree, or a Professional degree). We also predicted that those in an ethnic minority (i.e., African American, Hispanic, East Asian, Indian) were more likely to drop out of treatment than those who were not in an ethnic minority (i.e., Caucasian). These hypotheses were based on research which suggested that individuals in ethnic minorities, as well as those who were less-educated, were more likely to drop out of treatment (Gonzalez et al., 2011; Barrett et al., 2008; Wierzbicki & Pekarik, 1993; Kendall & Sugarman, 1977).

2) *Level of care:* We predicted that those who participated in the IOP were more likely to drop out than those who participated in residential treatment. This hypothesis was based off of the notion that residential care often attracts individuals who dropped out of traditional approaches, such as intensive outpatient therapy (Björgvinsson et al., 2013). We also predicted that residential settings would be associated with fewer instances of dropout based on the physical challenges associated with leaving an inpatient unit versus simply not showing up to therapy or day treatment.

3) *OCD symptom severity at pre-treatment*: In a study of OCD patients (Foa et al., 2005), those who completed treatment were no different from patients who dropped out of treatment in terms of pre-treatment OCD severity. Conflicting evidence suggests that self-reported OCD severity at pre-treatment may have implications for treatment dropout, with lower pre-treatment scores being associated with a more favorable treatment outcome (Steketee et al., 2011). However, conflicting literature shows that adult OCD patients who drop out of therapy appear to have less severe OCD symptoms at pre-treatment than those who successfully complete treatment (Hansen et al., 1992). The research on OCD symptom severity as it relates to treatment dropout is ambiguous and has never before been studied in a residential setting. Because of the conflicting literature, specific predictions about OCD symptom severity could not be made.

4) *Depression symptom severity at pre-treatment*: We predicted that pre-treatment levels of depression would be significantly related to treatment attrition. Specifically, individuals who dropped out from treatment were expected to have more severe depression than those who completed treatment. This hypothesis was based on research which stated that more severe symptoms of depression at pre-treatment were significantly associated with treatment attrition (Isaakidis & Andrews, 2004; Gonzalez et al., 2011).

5) *Insight*: We predicted that individuals with lower levels of insight would be more likely to drop out of treatment. This hypothesis was based on Santana et al. (2013), Kishore et al. (2004), and Eisen et al. (2001) who suggested that those with low insight were more likely to have poor adherence to drug treatment, as well as Foa (1979) who suggested that OCD patients with poor insight did not respond as well to behavioral therapy.

6) *Degree of avoidance*: We predicted that those who completed treatment would have lower scores on the assessments of avoidance than those who dropped out of treatment. Avoidance includes overt (e.g., evading a public restroom) as well as less obvious (e.g., distracting oneself) behaviors that are aimed at reducing or preventing the distress caused by certain thoughts, ideas, images, or impulses (APA, 2013). More generally, we predicted that individuals who endorsed higher levels of avoidance were more likely to drop out as opposed to those who completed treatment. Because there is no literature on the association between official measures of avoidance and adult treatment attrition (although Chasson et al., 2008, demonstrated a link in child psychotherapy patients), the following hypotheses were largely based off of the following research and concepts:

a. Experiential avoidance: Experiential avoidance refers to one's reluctance or aversion to endure distressing thoughts, emotions, memories, or other experiences such as bodily sensations, which often leads to dysfunctional attempts at escaping, resisting, or avoiding these experiences (Abramowitz, Lackey, & Wheaton, 2009; Hayes, Wilson, Gifford, Follette, & Stroahl, 1996). We predicted that patients with high levels of experiential avoidance were more likely to drop out of treatment. This hypothesis was based on the idea that those who were afraid of their feelings and whose emotions caused problems in life were be more likely to avoid these topics during treatment.

b. Suppression: Thought suppression, meaning the suppression of disturbing ideas, images, or impulses, is one common avoidance strategy that is said to be a major factor in the development and maintenance of OCD (Purdon, 2004). We predicted that patients who endorsed more suppression strategies were more likely to drop out of treatment. Patients who suppress

thoughts, rather than discuss them with the therapist or during an exposure, may be less likely to reap the benefits of treatment and, therefore, perhaps be inclined to dropout.

c. Cognitive reappraisal: Cognitive reappraisal involves reframing a situation, thought, or idea to reduce its negative emotional impact (Gross, 1998). The use of cognitive appraisal has generally been related to increased psychological well-being (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gross & John, 2003); however, recent literature has shown that it may be related to avoidance (Wolgast, Lundh, & Viborg, 2011). Troy, Shallcross, and Mauss (2013) identified that cognitive reappraisal may be adaptive when dealing with uncontrollable stressors, such as a death in the family, but may be dysfunctional when the person has the ability to change a situation. We predicted that patients who endorsed more cognitive reappraisal strategies were more likely to drop out of treatment. This hypothesis was based off the idea that the use of cognitive reappraisal might reduce a patient's negative emotion associated with his or her symptoms and, thus, lower his or her motivation for staying in treatment (Troy et al., 2013).

## Methods

### Participants

The original sample contained 201 patients from the Houston OCD Program in Houston, Texas. Patients had various diagnoses, including OCD, generalized anxiety disorder, major depressive disorder, and posttraumatic stress disorder. After removing participants who did not have a primary diagnosis of OCD, 117 patients remained in the sample. One patient in the database was currently in treatment and, therefore, did not have a status for completion, dropout, or other administrative discharge. Thirteen patients in the remaining sample were administratively discharged either due to serious suicidal threats or attempts (0.9%), active psychosis (1.9%), treatment non-compliance (6.8%), or program non-compliance (2.9%).

Treatment non-compliance included behavior such as not following the treatment team's recommendations, not sticking to a behavior plan, and isolating oneself during the treatment day. To be considered program non-compliant, patients had to have multiple instances of not following the rules or structure of a program, such as being disruptive to the treatment community, disregarding curfew, engaging in illegal drug use, breaking confidentiality, and engaging in active aggression or violent behavior on the unit. Because these instances of dropout were the result of the program's decision (i.e., administratively discharged), only dropout decisions made by the patient were studied.

The final sample consisted of 103 male (49.5%) and female (36.9%) patients, ranging from age 16 to 77 ($M$ = 29.5, $SD$ = 11.2), with a primary diagnosis of OCD. Of the 103 patients, 42 (40%) had at least one comorbid condition. Ten patients (9.7%) had comorbid major depressive disorder, nine patients (8.7%) had comorbid generalized anxiety disorder, six patients (5.8%) had comorbid dysthymic disorder, and five patients (4.8%) had comorbid panic with agoraphobia. Other comorbid conditions, which occurred in a negligible number of patients, included alcohol abuse, bipolar disorder not otherwise specified, and cannabis dependence. Patients included 71.8% Caucasians, 4.9% East Asians, 1.9% Hispanics, 1.9% Indians, and 1.9% African Americans. Because previous literature examined ethnic minority status in general, rather than specific groups (Gonzalez et al., 2011; Hamilton et al., 2011; Wierzbicki & Pekarik, 1993), we combined those who identified as East Asian, Hispanic, Indian, or African American as belonging to one group (i.e., minority status) to be compared with Caucasians. The collapsing of ethnic levels was also done to address the insufficient representation of some groups (e.g., only 1.9% of African Americans). In terms of education level, 6.8% of the sample attended some high school, 11.7% achieved a high school diploma or equivalent, 17.5% attended some

college, 3.9% obtained a technical or Associate's degree, 32% achieved a Bachelor's degree, 7.8% achieved a Master's degree, 1% obtained a Doctoral degree, and 1.9% achieved a professional degree, such as a Medical Degree. To examine differences in education level, patients were divided into two groups based on whether they achieved a postsecondary degree (technical or Associate's, Bachelor's, Master's, Doctoral, or Professional) or did not achieve a postsecondary degree (attended some high school, achieved a high school diploma or equivalent, attended some college). We collapsed education levels to address insufficient representation of some groups, such as only 1% of patients having a Doctoral degree. All of these patients participated in either the residential (61.2%) or the IOP (37.9%) treatment center at the Houston OCD Program. Of the 103 patients, 75 (72.8%) of individuals completed treatment, whereas 28 (27.2%) patients dropped out of treatment. See Table 1 for sample characteristics.

The Houston OCD Program features three levels of care for individuals with OCD: residential support, an IOP, and an outpatient clinic ("Compassionate OCD," 2014). The residential support center at the Houston OCD Program, which supported 61.2% of the participants, is highly specialized for adults with severe OCD. Patients in the residential support program participate in programming each day of the week and reside in an independent living facility. The residential center is intended to be homelike in terms of its environment while also providing patients the opportunity to practice ERP exercises in real life situations with the ongoing support of the treatment team. The IOP, which supported 37.9% of the participants, is specialized for individuals with moderate to severe symptoms. The program meets for approximately 8-9 hours a day and allows patients the opportunity to meet and work with others who also have OCD. Both programs feature at least two hours of staff directed ERP, with an additional two hours per day dedicated to patient's self-directed exposures. Goal reviewing and

CBT skill building are also part of the daily schedules of the residential treatment and IOP. Patients in both programs receive individualized care (e.g., one-on-one psychotherapy), as well as opportunities to interact with a group. Psychoeducation is provided throughout treatment to give patients a better understanding of OCD and how to enhance recovery. The staff at the Houston OCD Program use pharmacological interventions to supplement behavioral interventions as needed. The Houston OCD Program has an outpatient clinic, as well, which is run by expert therapists who use evidence based treatments to address anxiety, depression, and phobias. All of the patients in the current study participated in either the residential treatment or IOP.

**Procedures**

Client data were collected as part of routine procedure at the Houston OCD Program, and participation in filling out the questionnaires was voluntary. At pre-treatment, patients filled out a comprehensive clinical battery, only some of which was used for the current study: a demographic survey, the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman, Price, Rasmussen, & Mazure, 1989a, 1989b), the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011), and the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Weekly assessments were also given to patients, including, but not limited to, the Brown Assessment of Beliefs Scale (BABS; Eisen et al., 1998). Patients worked with a treatment team of psychologists, psychiatrists, and behavior therapists experienced in the diagnosis and treatment of OCD. Clinicians formulated diagnoses for each patient based on a best estimate procedure making use of the patient's level of impairment, as well as actuarial data from questionnaires, medical records, questionnaires, and

other clinical data (Wetterneck et al., 2011). Archival data use was approved by the University of Houston-Clear Lake's Committee for the Protection of Human Services.

## Measures

**Yale-Brown Obsessive-Compulsive Scale – Severity scale (Y-BOCS; Goodman et al., 1989a; 1989b).** The Y-BOCS is the most widely used and accepted measure of OCD symptom severity (Frost, Steketee, Krause, & Trepanier, 1995; Kim, Dysken, & Katz, 1989). The Y-BOCS was designed as a structured interview to be completed by the clinician, although self-report versions of the Y-BOCS have also been validated (Steketee, Frost, & Bogart, 1996). Included within the Y-BOCS is the Y-BOCS Severity scale, which is a 10-item scale on which patients indicate, on a 0-4 Likert scale, the extent to which they endorse the following items: time spent on obsessions/compulsions (0 hours a day to more than 8 hours a day), interference from obsessions/compulsions (none to incapacitating), distress from obsessions and compulsions (none to near constant, disabling), resistance to obsessions (always resists to completely yields), and control over obsessions/compulsions (complete control to no control). Total Y-BOCS Severity scale scores can range from 0-40 (0-7 = subclinical, 8-15 = mild, 16-23 = moderate, 24-31 = severe, 32-40 = extreme; Goodman et al., 1989a, 1989b).

In a study of the psychometric properties of the self-report Y-BOCS, Warren et al. (1993) found the internal reliability to be excellent for the total score, as well as the subscales (0.88-0.91). Steketee et al. (1996) also showed that the internal consistencies of the total score and the subscales for the self-report Y-BOCS ranged from good to excellent and were superior to the clinician administered version of the assessment. Test-retest reliability was also excellent for the self-report version and, overall, compared well in regards to validity with the original, clinician administered version (Steketee et al., 1996). The self-report version of the Y-BOCS appears to

have good to excellent psychometric qualities, not unlike its clinician administered counterpart. The Y-BOCS Severity scale was chosen to assess obsessive-compulsive symptom severity because of its excellent psychometric properties, regular use in the field, and recognition of being the gold-standard measure of OCD symptoms.

**Beck Depression Inventory-II (BDI-II; Beck et al., 1996).** The BDI-II is intended to measure symptoms of depression in clinical and non-clinical adults and adolescents (Beck, Steer, & Brown, 1996). The self-report measure consist of 21 items with each item rated on a 4-point Likert scale (0 = less severe, 3 = more severe) with total scores ranging from 0-63 and higher scores being reflective of more severe depression. Guidelines for interpreting the BDI-II are as follows: 0-13 = minimal depressive symptoms, 14-19 = mild depressive symptoms, 20-28 = moderate depressive symptoms, 29-63 = severe depressive symptoms (Beck et al., 1996). The BDI-II features items such as sadness, past failures, loss of pleasure, self-dislike, irritability, and concentration difficulty.

The psychometrics of the BDI-II have been widely studied, and reviews of the assessment have been favorable (see Wang & Gorenstein, 2013; Sprinkle et al., 2002; Dozois, Dobson, & Ahnberg, 1998; Beck, Steer, & Brown, 1996). The BDI-II has demonstrated good reliability in stability and internal consistency, and no significant gender differences have been found (Beck et al., 1996; Dozois et al., 1998). Moreover, it has demonstrated strong discriminant and convergent validity, as well as adequate factorial validity (Wang & Gorenstein, 2013; Dozois et al., 1998) and excellent test-retest reliability and criterion validity (Sprinkle et al., 2002). The BDI-II was chosen to assess depressive symptoms because of its utility with depressed and non-depressed individuals, as well as its good psychometric properties and its

focus on items that may contribute to treatment drop-out, such as concentration difficulty and past failures.

**Brown Assessment of Beliefs Scale (BABS; Eisen et al., 1998).** The BABS was developed as a semi-structured interview to measure patients' insight and conviction about certain beliefs, including thoughts underlying delusions, phobias, and obsessions (Eisen et al., 1998). It consists of seven items, although only six of these items contributing to the total score. The first six items correspond to conviction, perception of others' views of beliefs, explanation of differing views, fixity of ideas, attempt to disprove ideas, and insight. The seventh item, which corresponds to ideas/delusions of reference, does not contribute to the total score. All items are rated on a 5-point Likert scale (0 = least severe, 4 = most severe). Higher scores indicate higher levels of delusionality or less insight. Lower scores indicate higher insight and less delusionality. Eisen et al. (1988) developed the BABS with the idea that insight, or the degree to which an individual believes his or her thoughts are realistic/delusional, exists on a continuum. For example, when assessing insight, the clinician would be directed to ask the patient, "What do you think has caused you to have these beliefs? Do you think they have a psychiatric or psychological cause, or are they actually true?" The participants would then answer according to their endorsement of the item (0 = "beliefs definitely have a psychiatric/psychological cause", 4 = "beliefs definitely do not have a psychiatric/psychological cause").

The BABS has demonstrated good psychometric properties, including internal consistency, test-retest reliability, and interrater reliability (Eisen et al., 1998; Phillips et al., 2013). It also demonstrated good convergent validity on other measures of delusionality and conviction, such as the Scale to Assess Unawareness of Mental Disorder (Eisen et al., 1998). Other advantages of the BABS include its ease of administration, length, and sensitivity to

change such that it can be used to measure efficacy of treatment (Eisen et al., 1998). Because of its strong psychometric properties, as well as its history as being the most widely used assessment of delusionality/insight (particularly in studies of OCD [Phillips et al., 2013]), the BABS was chosen as the instrument to assess this construct.

**Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011).** The AAQ-II is a 7 item self-report questionnaire on which individuals rate the extent to which they believe various statements (e.g., "Emotions cause problems in my life," My painful memories prevent me from having a fulfilling life," "Worries get in the way of my success") on a 1-7 Likert scale (1 = "never true", 7 = "always true"). High scores reflect more psychological inflexibility or more experiential avoidance (Bond et al., 2011). It was designed by Bond et al. (2011) to measure experiential avoidance and the extent to which individuals may try to predict, avoid, alter, or control uncomfortable or unpleasant experiences and feelings (Fledderus et al., 2012). The AAQ-II is the most widely used assessment of experiential avoidance, given its good internal consistency, incremental validity, and construct validity (Fledderus et al., 2012; Bond et al., 2011; Jacobs, Kleen, de Groot, & A-Tjak, 2008; McCracken & Zhao-O'Brien, 2010). A recent review also indicated that the AAQ-II is reliable and valid assessment for evaluating experiential avoidance in those with anxiety and mild to moderate depression (Fledderus et al., 2012). The AAQ-II is a widely used assessment of experiential avoidance and has been validated and adapted for various populations, including a Spanish version and a version for children and adolescents (Cabello et al., 2013; Gullone & Taffe, 2012). The AAQ-II was chosen as the first measurement of avoidance because of its favorable psychometric qualities and its recognition as one of the most valid and reliable instruments for assessing experiential avoidance.

**Emotion Regulation Questionnaire (ERQ, Gross & John, 2003).** Gross and John (2003) developed the ERQ to assess emotion regulation approaches, namely cognitive reappraisal and expression suppression. There are 10 self-report items in total with two subscales. The suppression subscale includes items such as, "I keep emotions to myself," and "I control my emotions by not expressing them". The cognitive reappraisal subscale includes items such as, "When I want to feel less negative emotion such as sadness or anger, I change what I'm thinking about," and "I control my emotions by changing the way I think about the situation I'm in". Items are answered on a 1-7 Likert scale (1 = "strongly disagree", 7 = "strongly agree") with higher scores reflecting more endorsement of the emotion regulation strategy (Gross & John, 2003).

In terms of psychometric properties, the ERQ subscales have shown to have good test-retest reliability over a period of 3 months (Gross & John, 2003), as well as adequate internal consistency and factorial validity (Uphill, Lane, & Jones, 2012; Gross & John, 2003). Some reviews have shown that the reappraisal and suppression subscales are correlated, though not strongly (Uphill et al., 2012), while other reviews have not shown this to be the case (Gross & John, 2003). Because of its adequate to good psychometrics, as well as its focus on two different emotion regulation strategies, the ERQ was chosen as the second instrument to assess avoidance.

**Data analysis**

We conducted comparisons between completers and dropouts on continuous variables using multiple independent samples *t*-tests. For comparisons using categorical dependent variables, we employed chi-square analyses. The power analysis for the *t*-tests indicated that, based on adjusted degrees of freedom, the analyses were powered to detect large effect sizes ranging from $d = 0.66$ to $d = 1.75$. The power analysis for the chi-squares also indicated that,

based on the sample size, the analyses were powered to detect a moderate effect size. Because the study was statistically underpowered, no alpha correction was applied despite the use of multiple point hypothesis tests.

## Results

### Missing data

Before analyzing the data, patterns of missing data were inspected to estimate whether the data were Missing at Random, Missing Completely at Random, or Missing Not at Random (Rubin, 1976). Given the clinical nature of data collection at the Houston OCD Program (i.e., use of self-report surveys, not always giving certain questionnaires to each patient), missing data were expected, and 23.51% of the values were missing in total. The BABS was the most noteworthy of variables with missing data, with a total of 59.2% missing values. Based on Rubin's (1976) system of classifying missing data, we had no reason to suspect that the values were Missing Not at Random. That is, it was unlikely that the missing data were related to the constructs being measured. Multiple imputation with five iterations was therefore employed. Multiple imputation is a widely accepted and unbiased approach for addressing missing data (Enders, 2010).

Auxiliary variables were added to improve the multiple imputation technique and included associated variables such as school status (i.e., currently in school, not currently in school), length of stay, the Dimensional Obsessive-Compulsive Scale (DOCS; Abramowitz et al., 2010), and the Distress Intolerance Index (DII; McHugh & Otto, 2012). The DOCS is a useful tool for measuring the dimensional aspect of obsessive-compulsive symptoms, and it demonstrated good psychometric properties that paralleled other widely used instruments, such as the Y-BOCS (Goodman et al., 1989a, 1989b). The DII consists of 10 items from the Anxiety

Sensitivity Index (Peterson & Reiss, 1992), the Distress Tolerance Scale (Simons & Gaher, 2005), and the Frustration Discomfort Scale (Harrington, 2005; see McHugh & Otto, 2012 for a review). Researchers demonstrated that these 10 items in particular (e.g., "It scares me when I am nervous," "I must be free of disturbing things feelings as quickly as possible; I can't bear it if they continue") best captured the construct of distress intolerance, and the 10 items are now used as its own index as the DII (McHugh & Otto, 2012). As part of the multiple imputation process, pooled versions of statistics were analyzed, and degrees of freedom were adjusted based on the procedures and suggestions summarized in Enders (2010), Reiter (2007), and Barnard and Rubin (1999).

**Inferential Statistics**

Those who dropped out of treatment ($M$ = 29.0, $SD$ = 6.57) reported significantly more use of cognitive reappraisal than those who completed treatment ($M$ = 25.18, $SD$ = 7.87), $t(86.20) = -2.10$, $p = .036$. No other $t$-tests were statistically significant. See Table 2 for a summary of the descriptive data and inferential tests. The same analyses were also conducted on original data, as opposed to the analyses after the multiple imputation procedure, and there were no differences in the results.

With respect to categorical dependent variables, there was not a statistically significant association between education level and dropout status, $\chi^2(1) = 0.24$, $p = .63$. Of the 37 patients who did not have a postsecondary degree, 28 completed treatment whereas 9 dropped out. Of the 66 patients who had a postsecondary degree, 47 completed treatment whereas 19 dropped out. There was, however, a significant association between ethnicity and dropout status, $\chi^2(1) = 5.13$, $p = .02$. Of the 74 Caucasian individuals in the sample, 61 completed treatment whereas 13 dropped out. Of the 13 individuals belonging to an ethnic minority, 9 completed treatment

whereas 4 dropped out. For 16 patients, ethnicity data were missing. The odds of staying in treatment were 2.97 times higher for Caucasians. Similarly, there was a significant association between level of care and dropout status, $\chi^2(1) = 8.37$, $p = .003$. Of the 63 patients who received residential treatment, 52 patients completed treatment whereas 11 dropped out. Of the 39 patients in IOP, 22 completed treatment whereas 17 dropped out. For one patient, level of care data was missing. The odds of dropping out of treatment were 3.64 times higher if a patient was in IOP versus residential treatment.

## Discussion

This study evaluated whether minority status, education level, and level of care influenced a patient's decision to drop out of or complete treatment in a sample of OCD patients from the Houston OCD Program. We also investigated whether OCD symptom severity, depressive symptoms, insight, and avoidance tendencies influenced dropout status. Contrary to existing literature (Gonzalez et al., 2011; Wierzbicki & Pekarik, 1993; Kendall & Sugarmann, 1977), findings from the current study indicated that education did not predict dropout status. This represented the fact that those who did not obtain a postsecondary degree were no more or less likely to drop out of treatment than those who obtained a postsecondary degree. This may be due to the collapsing of groups into whether or not patients had a postsecondary degree. Future researchers should measure education in average years, which seems to be a more common method (see Wierzbicki & Pekarik, 1993 for a meta-analysis). Given the nature of the dataset provided by the Houston OCD Program, we only had access to the highest level of education obtained by the patient, rather than years spent in school.

Given the state of the conflicting literature on OCD symptoms and treatment dropout, it was unsurprising to discover that OCD symptom severity at pre-treatment was not associated

with treatment dropout in this sample. A number of reasons could explain why obsessive-compulsive symptom severity was not associated with dropout in the present study. First, it is possible that some individuals with severe OCD drop out of treatment, whereas others are more committed to stay in treatment because of their severe obsessive-compulsive symptoms. Second, it is possible that OCD symptom severity does influence dropout but only at certain times. Aderka et al. (2011), for instance, found that patients who dropped out of treatment before session six had significantly more severe OCD symptoms at pre-treatment, whereas those who dropped out at sessions six or later were no different to treatment completers. It was also predicted that more severe depressive symptoms at pre-treatment would be associated with more treatment dropout, which was not the case in the current study. This may be another case of where depressive symptoms do, in fact, influence dropout but for early dropouts only, which was shown by Aderka et al. (2011) for obsessive-compulsive symptoms. There were insufficient data for analyzing some of these possibilities (e.g., early vs. late dropout), but future research should further explore the link between symptom severity and attrition from OCD treatment.

Lower levels of insight were also predicted to be associated with more dropouts; however, there was no significant relationship between insight and dropout status in this study. This might have been the result of some patients not wanting to share honest answers with the clinical interviewer who conducted the BABS, (which was the only questionnaire used in the study that was not self-report), such as admitting that their beliefs definitely do not have a psychological or psychiatric cause (Eisen et al., 1998). This assumption, however, requires further study. Finally, we predicted that patients with high levels of avoidance tendencies (i.e., experiential avoidance, suppression, and cognitive reappraisal) were more likely to drop out of treatment. We found that those who dropped out of treatment were no different than those who

completed treatment in their experiential avoidance or use of suppression as an emotion regulation strategy. This could be because we were only able to explore pre-treatment variables, rather than variables measured just before termination. The results also suggested that our analyses may have been underpowered, as we found a moderate—albeit statistically non-significant—effect size of $d$ =.29 for the AAQ-II. Because this was not significant, we cannot say that treatment completers were different than dropouts in their levels of experiential avoidance. However, the trend was in the anticipated direction with those who dropped out reporting higher levels of experiential avoidance on the AAQ-II. Additional research is needed with a larger sample size to determine if levels of one's experiential avoidance influences patient dropout. In addition, researchers should seek to evaluate, in a larger sample, whether avoidance tendencies or levels of insight measured just before termination are related to whether a patient completes or drops out of treatment.

We did, however, find that those who dropped out of treatment were significantly more likely to engage in cognitive reappraisal as an emotion regulation strategy than those who completed treatment. This suggested that those who dropped out of treatment were more likely to reframe negative thoughts to reduce their negative impact (Gross, 1998). Although generally thought of as a positive emotion regulation strategy, Troy et al. (2013) discussed that the use of cognitive reappraisal can be detrimental when used in controllable situations. That is, in stressful circumstances where the stressors are within one's own control, the use of cognitive reappraisal may actually de-motivate the individual from changing the situation as a result of no longer feeling the negative emotion associated with the situation (Troy et al., 2013). It is possible that those who used more cognitive reappraisal actually became less motivated to commit to treatment and, thus, terminated treatment prematurely. Because dropout was significantly less

likely to occur in the residential program, it is possible that those in the residential program felt less control over the decision to drop out or complete treatment for reasons such as transportation issues (e.g., some patients were thousands of miles from home) and physical challenges of leaving a residential treatment setting (e.g., paper work, official discharge routine). Another possibility is that those who dropped out used cognitive reappraisal as an adaptive, positive coping strategy; that is, their use of cognitive reappraisal led to a reduction in obsessive-compulsive symptoms, which may have allowed those patients adequate symptom relief such that they did not feel as compelled to return to treatment. Perhaps the use of cognitive reappraisal was not necessarily de-motivating, but rather served as a positive coping mechanism for some patients. Additional research is needed to explore the ways in which OCD dropouts use cognitive reappraisal and whether they are doing so in ways that de-motivate them in treatment, in ways that reduce symptom severity, or in other ways that influence their decision to stay in or drop out of treatment.

Two other factors, namely ethnicity and level of care, were significant in influencing patient dropout. Patients who identified as Caucasian were 2.97 times more likely to complete treatment than those belonging to an ethnic minority. This confirms previous literature, which also evidenced that those in ethnic minorities were more likely to drop out of treatment (Barrett et al., 2008; Wierzbicki & Pekarik, 1993). Barrett et al. (2008) indicated that this differential in dropout rates may be due to how mental health treatment is perceived in some ethnic minority groups. Some ethnic minority groups have traditionally shown to have negative perceptions of mental illness, which likely influences a patient's decision to complete or drop out of treatment (Barrett et al., 2008). It is possible that some individuals belonging to an ethnic minority in this sample were socialized to adhere to strict gender roles or be cautious of telling others, especially

mental health professionals, about personal life details (Barrett et al., 2008). This negative perception of mental health treatment, as well as a general hesitancy towards sharing personal information, could have influenced the ethnic minority individuals in our sample to drop out at a higher rate than the Caucasian individuals.

Furthermore, patients in the IOP setting were 3.64 times more likely to drop out than those in the residential setting. Several factors may have contributed to the significantly higher frequency of drop out in the IOP program than the residential program. First, as previously discussed, patients in the residential program may travel from far distances to receive treatment, possibly increasing their commitment to the program and also making it more logistically difficult to terminate prematurely from treatment. This is in contrast to patients in the IOP program, who are not as likely to travel from far distances for a less intensive treatment. Second, the residential program at the Houston OCD Program is one in which patients are expected to live in an independent facility for a period of 4-8 weeks. This is in contrast to the IOP program, where patients spend a portion of their day in treatment and then return home. Whereas patients in the residential program likely have to pack their belongings, discuss leaving the program with various professionals, and arrange for transportation in order to drop out, patients in the IOP program may simply drop out from the program by not returning for the next session. That is, the process of dropping out of residential treatment may be much more time consuming and more physically difficult than dropping out of an IOP program. Third, residential programs offer a level of ongoing structure and support that is not available for patients in IOP programs. This added level of structure and support of residential settings may contribute to patients actually wanting to stay in treatment, whereas patients may be more tempted to drop out in an IOP setting that does not offer this same level of support and structure. Finally, residential treatment may be

the last remaining option for some patients who either refused or dropped out of IOP or other outpatient programs in the past (Björgvinsson et al., 2013). It could be that IOP is either more or less helpful than residential treatment, a factor that might influence a patient's perception as to whether he or she should continue treatment.

One limitation of the current study was the frequency of missing data, which was problematic for the majority of variables. Moreover, our conclusions may have been limited by the small percentage of some ethnic groups, as well as the collapsing of education level into two groups. This resulted in a loss of more specific information about ethnic group and education level. Another drawback of this study was the lack of pre-treatment data for insight on the BABS (Eisen et al., 1998). The Houston OCD Program collected pre-treatment data for OCD severity, depression severity, and avoidance, but insight was not measured until week one of treatment. In future studies, researchers should focus on measures of pre-treatment insight as opposed to insight at week one, given the possibility that some patients may drop out of treatment before the first week. It is important to note that the insufficient power to detect medium effects or smaller is a study-wide limitation, which may have resulted in potentially misleading non-significant findings (e.g., AAQ-II). Future studies should incorporate a larger sample size to re-examine the effects of symptom severity, insight, and avoidance tendencies on patient dropout.

Also, given the nature of data collection at the Houston OCD Program, medication could not be used as a control variable in this study. The Houston OCD Program documented medication information in patients' treatment records, but they do not maintain this information in the research database. The researchers and other professionals at the program know whether patients are taking medications (and, if so, what type[s] of medications) but screen out any

medical concerns and rely on outpatient psychiatrists to handle the specifics of a patient's medical needs. Sources at the Houston OCD Program indicated that approximately 85% of their patients were on some type of medication when they entered treatment. Future studies should control for variables, like medication, that may influence a patient's decision to stay in or drop out of treatment.

Despite its limitations, the present study is noteworthy because it suggests that OCD treatment dropout may be linked with the use of cognitive reappraisal, ethnicity, and level of care. Findings from the current study further suggest that the use of cognitive reappraisal may be associated with treatment dropout in some contexts. It also suggests that those who dropped out of treatment may have been de-motivated to stay in treatment as a result of their use of cognitive reappraisal as an emotion regulation strategy. Patients using cognitive reappraisal, namely those in the IOP setting, may have been at a particular risk for dropping out of treatment as a result of reducing the negative impact associated with their symptoms. Instead of changing the stressor (i.e., their OCD symptoms) by staying in treatment, these patients instead seemed to reduce the negative influence of their symptoms by reframing their emotional impact (e.g., thinking symptoms were less serious than before). This finding also has implications for treatment, as cognitive reappraisal is often taught as a positive coping strategy during CBT treatment (Beck, Rush, Shaw, & Emery, 1979). That is, based on the current findings, patients should be taught to use cognitive reappraisal in contexts that increase their psychological well-being (Troy et al., 2013; Wolgast et al., 2011) and not contexts that may cause them to become de-motivated. It appears as though cognitive reappraisal is one way in which avoidance tendencies (i.e., avoiding treatment as a result of reframing the impact of symptoms) may influence patient dropout.

In addition, the finding about level of care supports the use of residential programs in the treatment of OCD. Residential treatment not only provides structure by eliminating environmental barriers for OCD patients, but it allows for the ongoing support of multiple trained professionals 24 hours a day, 7 days a week ("Compassionate OCD," 2014). Indeed, based on existing studies of residential treatment outcomes, OCD patients reported significant reductions in OCD symptoms, anxiety, depression, and obsessive-compulsive beliefs (Björgvinsson et al., 2013; 2008; Boschen, Drummond, & Pillay, 2008; Stewart et al., 2005). These patients also reported an increase in quality of life after residential treatment (Björgvinsson et al., 2013). Eighty-three percent of patients in the residential setting completed treatment (the remaining 17% dropped out), whereas 22 patients (56%) of those receiving IOP completed treatment (the remaining 44% dropped out). Thus, although residential treatment is often reserved for the most challenging and severe patients—and is regarded as the last resort and highest level of specialized care—the dropout rate among patients in the residential program of 17% is sizably less than dropout rates in standard outpatient care for OCD (i.e., 25%; Jenike, 2004; Schruers et al., 2005). Residential treatment for OCD not only appears to be effective in significantly reducing obsessive-compulsive and related symptoms, but it may also protect against premature treatment termination.

By exploring other factors that may be associated with treatment dropout, researchers and clinicians may be able to identify patients who need additional support to prevent premature treatment termination. It is also important for future researchers to explore reasons for dropout, such as whether patients are moving and losing contact with the provider or refusing to return for treatment. In any case, residential treatment represents a promising option that features ongoing

support and structure for OCD patients, particularly those who have refused or dropped out of other treatment settings in the past.

## References

Abel, J. L. (1993). Exposure with response prevention and serotonergic antidepressants in the treatment of obsessive-compulsive disorder: A review and implications for interdisciplinary treatment. *Behaviour Research and Therapy, 31,* 463-478.

Abramowitz, J. S., Deacon, B. J., Olatunji, B. O., Wheaton, M. G., Berman, N. C., Losardo, D., Timpano, K., McGrath, P., Riemann, B., Adams, T., Björgvinsson, T., Storch, E. A., & Hale, L. (2010). Assessment of obsessive-compulsive symptom dimensions: Development and evaluation of the Dimensional Obsessive-Compulsive Scale. *Psychological Assessment, 22,* 180-198.

Abramowitz, J. S., Lackey, G. R., & Wheaton, M. G. (2009). Obsessive-compulsive symptoms: The contribution of obsessional beliefs and experiential avoidance. *Journal of Anxiety Disorders, 23,* 160-166.

Aderka, I. M., Anholt, G. E., van Balkom, A. J. L. M., Smit, J. H., Hermesh, H., Hofmann, S. G., & van Oppen, P. (2011). Differences between early and late drop-outs from treatment for obsessive-compulsive disorder. *Journal of Anxiety Disorders, 25,* 918-923.

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30,* 217-237.

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders. 5th Edition, Washington DC. American Psychiatric Association.

Amir, N., Cashman, L., & Foa, E. B. (1997). Strategies of thought control in obsessive-compulsive disorder. *Behaviour Research and Therapy, 35,* 775-777.

April, D., & Nicholas, L. J. (1996). Premature termination of counseling at a university Counseling Centre. *Behaviour Research and Therapy, 41,* 633-646.

Barnard, J., & Rubin, D. B. (1999). Small-sample degrees of freedom with multiple imputation. *Biometrika, 86,* 948-955.

Barrett, M. S., Chua, W. J., Crits-Christoph, P., Gibbons, M. B., Thompson, D. (2008). Early withdrawal from mental health treatment: Implications for psychotherapy practice. *Psychotherapy: Theory, Research, Practice, Training, 45,* 247-267.

Basco, M. R., Glickman, M., Weatherford, P., & Ryser, N. (2000). Cognitive-behavioral therapy for anxiety disorder: Why and how it works. *Bulletin of the Menninger Clinic, 64,* A52-A71.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guilford Press.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory manual* (2nd ed.). San Antonio. TX: Psychological Corporation.

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8,* 77-100.

Björgvinsson, T., Hart, J., Wetterneck, C., Barrera, T. L., Chasson, G. S., Powell, D. M., Heffelfinger, S., Stanley, M. A. (2013). Outcomes of specialized residential treatment for adults with obsessive-compulsive disorder. *Journal of Psychiatric Practice, 9,* 429-437.

Björgvinsson, T., Wetterneck, C. T., Powell, D. M., Chasson, G. S., Webb, S. A., Hart, J., Heffelfinger, S., Azzouz, R., Entricht, T. L., Davidson, J. E., & Stanley, M. A. (2008). Treatment outcome for adolescent obsessive-compulsive disorder in a specialized hospital setting. *Journal of Psychiatric Practice; 14,* 137-145.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire-II: A revised measure of psychological flexibility and experiential avoidance. *Behavior Therapy, 42,* 676-688.

Boschen, M. J., Drummond, L. M., & Pillay, A. (2008). Treatment of severe, treatment-refractory obsessive-compulsive disorder: A study of inpatient and community treatment. *CNS Spectrum, 13,* 1056-1065.

Cabello, R., Salguero, J. M., Fernandez-Berrocal, P., & Gross, J. J. (2013). A Spanish adaptation of the Emotion Regulation Questionnaire. *European Journal of Psychological Assessment, 29,* 234-240.

Chasson, G. S. (2005). Attrition in child treatment: The contributions of child, family, and service factors. *Psychotherapy Bulletin, 40*(1), 4-7.

Chasson, G. S., Vincent, J. P., & Harris, G. E. (2008). The use of symptom severity measured just before termination to predict child treatment dropout. *Journal of Clinical Psychology, 64,* 891-904.

"Compassionate OCD Treatment Center with Residential Support." *Houston OCD Program.*N.p., n.d. Web. 13. Mar. 2014.

de Haan, A. M., Boon, A. E., de Jong, J. T. V. M., Hoeve, M., & Vermeiren, R. R. J. M. (2013). A meta-analytic review on treatment dropout in child and adolescent outpatient mental health care. *Clinical Psychology Review, 33,* 698-711.

Dozois, D. J. A., Dobson, K. S., & Ahnberg, J. L. (1988). A psychometric evaluation of the Beck Depression Inventory-II. *Psychological Assessment, 10,* 83-89.

Eiduson, B. T. (1968). The two classes of information in psychiatry. *Archives of General Psychiatry, 18,* 405-419.

Eisen, J. L., Rasmussen, S. A., Phillips, K. A., Price, L. H., Davidson, J., Lydiard, R. B., Ninan, P., & Piggott, T. (2001). Insight and treatment in obsessive-compulsive disorder. *Comprehensive Psychiatry, 42,* 494-497.

Eisen, J. L., Phillips, K. A., Baer, L., Beer, D. A., Atala, K. D., & Rasmussen, S. A. (1998). The Brown Assessment of Beliefs Scale: Reliability and validity. *The American Journal of Psychiatry, 155,* 102-108.

Emmelkamp, P. M., de Haan, E., & Hoogduin, C. A. (1990). Marital adjustment and obsessive-compulsive disorder. *British Journal of Psychiatry, 156,* 55-60.

Enders, C. K. (2010). *Applied missing data analysis.* New York: Guilford Press.

Endler, N. S., Cox, B. J., Parker, J. D. A., & Bagby, R. M. (1992). Self-reports of depression and state-trait anxiety: Evidence for differential assessment. *Journal of Personality and Social Psychology, 63,* 832-838.

Fals-Stewart, W.,Marks, A. P., & Schafer, J. (1993). A comparison of behavioral group therapy and individual behavior therapy in treating obsessive-compulsive disorder. *Journal of Nervous and Mental Disease, 181,* 189-193.

Fehm, L., & Hoywer, J. (2004). Measuring thought control strategies: The Thought Control Quetionnaire and a look beyond. *Cognitive Therapy and Research, 28,* 105-117.

Fledderus, M., Oude Voshaar, M. A. H., ten Klooster, P. M., & Bohlmeijer, E. T. (2012). Further evaluation of the psychometric properties of the Acceptance and Action Quetsionnaire-II. *Psychological Assessment, 24,* 925-936.

Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M. E., Huppert, J. D., Kjernisted, K., Rowan, V., Schmidt, A. B., Simpson, H. B., & Tu, X. (2005). Randomized, placebo-controlled trial of exposure and ritual prevention, clomipramine, and their combination in the treatment of obsessive-compulsive disorder. *The American Journal of Psychiatry, 162,* 151-161.

Foa, E. B. (1979). Failure in treating obsessive-compulsives. *Behavioral Research and Therapy, 17,* 169-176.

Franklin, M. E., Abramowitz, J. S., Kozak, M. J., Levitt, J. T., & Foa, E. B. (2000). Effectiveness of exposure and ritual prevention for obsessive-compulsive disorder: Randomized compared with nonrandomized samples. *Journal of Consulting and Clinical Psychology, 68,* 594-602.

Frost, R. O., Steketee, G., Krause, M. S., Trepanier, K. L. (1995). The relationship of the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) to other measures of obsessive-compulsive symptoms in a non-clinical population. *Journal of Personality Assessment, 65,* 158-168.

Gonzalez, A., Weersing, V. R., Warnick, E. M., Scahill, L. D., & Woolston, J. L. (2011). Predictors of treatment attrition among an outpatient clinic sample of youths with clinically significant anxiety. *Administration and Policy in Mental Health, 38,* 356-367.

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Delgado, P., Heninger, G. R., & Charney, D. S. (1989a). The Yale-Brown Obsessive Compulsive Scale. II. validity. *Archives of General Psychiatry, 46,* 1012-1016.

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Delgado, P., Heninger, G. R., & Charney, D. S. (1989b). The Yale-Brown Obsessive Compulsive Scale. I. development, use, and reliability. *Archives of General Psychiatry, 46,* 1006-1011.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85,* 348-362.

Gross, J. J. (1998). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74,* 224-237.

Gullone, E., & Taffe, J. (2012). The Emotion Regulation Questionnaire for children and adolescents (ERQ-CA): A psychometric evaluation. *Psychological Assessment, 24,* 409-417.

Hamilton, S., Moore, A. M., Crane, R., & Payne, S. H. (2011). Psychotherapy dropouts: Differences by modality, license, and DSM-IV diagnosis. *Journal of Marital and Family Therapy, 37,* 333-343.

Hansen, A. M. D., Hoogduin, C. A. L., Schaap, C., & de Haan, E. (1992). Do drop-outs differ from successfully treated obsessive-compulsives? *Behaviour Research and Therapy, 30,* 547-550.

Harrington, N. (2005). The Frustration Discomfort Scale: Development and psychometric properties. *Clinical Psychology and Psychotherapy, 12,* 374-387.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Stroahl, K. D. (1996). Emotional avoidance and behavior disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64,* 1152-1168.

Hembree, E. A., Foa, E. B., Dorfan, N. M., Street, G. P., Kowalski, J., & Tu, X. (2003). Do patients drop out prematurely from exposure therapy for PTSD? *Journal of Traumatic Stress, 16,* 555-562.

Hill, N. R., & Beamish, P. M. (2007). Treatment outcomes for obsessive-compulsive disorder: A critical review. *Journal of Counseling and Development, 85,* 504-510.

Himle, M. B., & Franklin, M. E. (2009). The more you do it, the easier it gets: Exposure and response prevention for OCD. *Cognitive and Behavioral Practice, 16,* 29-39.

Isaakidis, C., & Andrews, G. (2004). Pretreatment attrition and dropout in an outpatient clinic for anxiety disorders. *Acta Psychiatr Scand, 109,* 426-433.

Jacobs, N., Kleen, M., de Groot, F., & A-Tjak, J. (2008). Measuring experiential avoidance: Dutch translation of the Acceptance and Action Questionnaire-II (AAQ-II). *Gedragstherapie, 41,* 349-361.

Jenike, M. A. (2004). Obsessive-compulsive disorder. *The New England Journal of Medicine, 350,* 259-265.

Kendall, P. C., & Sugarman, A. (1997). Attrition in the treatment of childhood anxiety disorders. *Journal of Consulting and Clinical Psychology, 65,* 883-888.

Kim, S. W., Dysken, M. W., & Katz, R. (1989). Rating scales for obsessive-compulsive disorder. *Psychiatric Annals, 19,* 74-79.

Kishore, V. R., Samar, R. Y C., Reddy, J., Chandrasekhar, C. R., & Thennarasu. (2004). Clinical characteristics and treatment response in poor and good insight obsessive-compulsive disorder. *European Psychiatry, 19,* 202-208.

Koran, L. M. (2000). Quality of life in obsessive-compulsive disorder. *Psychiatric Clinics of North America, 23,* 509-517.

Kozak, M. J., & Foa, E. B. (1997). *Mastery of obsessive-compulsive disorder: A cognitive behavioral approach.* San Antonio, TX: Psychological Corporation.

Lindsay, M., Crino, R., & Andrews, G. (1997). Controlled trial of exposure and response prevention in obsessive-compulsive disorder. *British Journal of Psychiatry, 171* 135-139.

Marks, I. M., Hodgson, R., & Rachman, S. (1975). Treatment of chronic obsessive-compulsive neurosis by in-vivo exposure: a two-year follow-up and issues in treatment. *The British Journal of Psychiatry, 127,* 349-364.

Marks, I. M., O'Dwyer, A. M., Meehan, O., Greist, J., Baer, L., & McGuire, P. (2000). Subjective imagery in obsessive-compulsive disorder before and after exposure therapy: Pilot randomised controlled trial. *British Journal of Psychiatry, 176,* 387-391.

McCracken, L. M., & Zhao-O'Brien, J. (2010). General psychological acceptance and chronic pain: There is more to accept than the pain itself. *European Journal of Pain, 14,* 170-175.

McHugh, R. K.., & Otto, M. W. (2012). Refining the measurement of distress intolerance. Behavior Therapy, *43,* 641-651.

National Institute of Mental Health. (1981). *Provisional data on federally funded community mental health centers, 1978-1989.* Report prepared by the Survey and Reports Branch, Division of Biometry and Epidemiology. Washington, DC.: U.S. Government Printing Office.

Neziroglu, F., Mashaal, J. S., & Mancusi, L. (2013). Assessment of Insight and Overvalued Ideation: In Obsessive-Compulsive Disorder. *Handbook of assessing variants and complications in anxiety disorders* (pp. 217-230). New York, NY: Springer.

Norberg, M. M., Calamari, J. E., Cohen, R. J., & Riemann, B. C. (2008). Quality of life in obsessive-compulsive disorder: An evaluation of impairment and a preliminary analysis of the ameliorating effects of treatment. *Depression & Anxiety, 25,* 248-259.

Ogrodniczuk, J. S., Joyce, A. S., & Piper, W. E. (2005). Strategies for reducing patient-initiated premature termination of psychotherapy. *Harvard Review of Psychiatry, 13,* 57-70.

Oliver, J. M., & Baumgart, E. P. (1985). The Dysfunctional Attitude Scale: Psychometric properties and relation to depression in an unselected adult population. *Cognitive Therapy and Research, 9,* 161-167.

Pekarik, G. (1985). Coping with dropouts. *Professional Psychology, Research, and Practice, 16,* 114-123.

Peterson, R. A., & Reiss, S. (1992). *Anxiety Sensitivity Index revised manual.* Worthington, OH: International Diagnostic Systems Publishing Corporation.

Phillips, K. A., Hart, A. S., Menard, W., & Eisen, J. L. (2013). Psychometric evaluation of the Brown Assessment of Beliefs Scale in body dysmorphic disorder. *The Journal of Nervous and Mental Disease, 201,* 640-643.

Ponniah, K., Magiati, I., & Hollon, S. D. (2013). An update on the efficacy of psychological treatments for obsessive-compulsive disorder in adults. *Journal of Obsessive-Compulsive and Related Disorders, 2,* 207-218.

Purdon, C. (2004). Empirical investigations of thought suppression in OCD. *Journal of Behavior Therapy and Experimental Psychiatry, 35,* 121-136.

Radomsky, A. S., Shafran, R., Coughtrey, A. E., & Rachman, S. (2010). Cognitive-behavior therapy for compulsive checking in OCD. *Cognitive and Behavioral Practice, 17,* 119-131.

Reiter, J. P. (2007). Small-sample degrees of freedom for multi-component significance tests with multiple imputation for missing data. *Biometrika, 94,* 502-508.

Riggs, D. S., Hiss, H., & Foa, E. B. (1992). Marital distress and the treatment of obsessive-compulsive disorder. *Behavior Therapy, 23,* 585-597.

Rowa, K., Antony, M. M., Summerfeldt, L. J., Purdon, C., Young, L., & Swinson, R. P. (2007). Office-based vs. home-based behavioral treatment for obsessive-compulsive disorder: A preliminary study. *Behaviour Research and Therapy, 45,* 1883-1892.

Rubin, D. B. (1976). Inference and missing data. *Biometrika, 63,* 581-592.

Santana, L., Fontenelle, J. M., Yucel, N., & Fontenelle, L. F. (2013). Rates and correlates of nonadherence in obsessive-compulsive disorder. *Journal of Psychiatric Practice, 19,* 42-53.

Schruers, K., Koning, K., Luermans, J., Haack, M. J., & Griez, E. (2005). Obsessive-compulsive disorder: A critical review of therapeutic perspectives. *Acta Psychiatrica Scandinavica, 111,* 261-271.

Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion, 29,* 83-102.

Steketee, G., Frost, R., & Bogart, K. (1996). The Yale-Brown Obsessive-Compulsive Scale: Interview versus self-report. *Behaviour Research and Therapy, 3,* 675-684.

Steketee, G., & Frost, R. O. Obsessive-compulsive disorder. In: Salkovskis P, ed. Comprehensive clinical psychology. Vol 6. Adults: clinical formulation and treatment. New York: Pergamon Press, 1998.

Steketee, G., Siev, J., Fama, J. M., Keshaviah, A., Chosak, A., & Wilhelm, S. (2011). Predictors of treatment outcome in modular cognitive therapy for obsessive-compulsive disorder. *Depression and Anxiety, 28,* 333-341.

Stewart, S. E., Stack, D. E., Farrell, C., Pauls, D. L., & Jenike, M. A. (2005). Effectiveness of intensive residential treatment (IRT) for severe, refractory obsessive-compulsive disorder. *Journal of Psychiatric Research, 39,* 603-609.

Sprinkle, S. D., Lurie, D., Insko, S. L., Atkinson, G., Jones, G. L., Logan, A. R., & Bissada, N. N. (2002). Criterion validity, severity cut scores, and test-retest reliability of the Beck Depression Inventory-II in a University Counseling Center sample. *Journal of Counseling Psychology, 49,* 381+385.

Task Force on Promotion and dissemination of Psychological Procedures, Division of Clinical Psychology, American Psychological Association. (1995). Training in and dissemination of empirically validated psychological treatments: Reports and recommendations. *The Clinical Psychologist, 48,* 3-23.

Troy, A. S., Shallcross, A. J., & Mauss, I. B. (2013). A person-by-person approach to emotion regulation: Cognitive reappraisal can either help or hurt, depending on the context. *Psychological Science, 24,* 2505-2514.

Uphill, M. A., Lane, A. M., & Jones, M. V. (2012). Emotion Regulation Questionnaire for use with athletes. *Psychology of Sport and Exercise, 13,* 761-770.

Van Oppen, P., van Balkom, A. J. L. M., de Haan, E., & van Dyck, R. (2005). Cognitive therapy and exposure in vivo alone and in combination with fluvoxamine in obsessive-compulsive disorder: A 5-year follow-up. *Journal of Clinical Psychiatry, 66,* 1415-1422.

Veale, D. (1999). Cognitive therapy in the treatment of obsessive-compulsive disorder. *Advances in Psychiatric Treatment, 5,* 61-70.

Vogel, P. A., Stiles, T. C., & Gotestam, K. G. (2004). Adding cognitive therapy elements to exposure therapy for obsessive compulsive disorder: A controlled study. *Behavioural and Cognitive Psychotherapy, 32,* 275-290.

Wang, Y. P., & Gorenstein, C. (2013). Psychometric properties of the Beck Depression Inventory-II: A comprehensive review. *Revista Brasileira de Psiquiatria, 35,* 416-431.

Warnick, E. M., Gonzalez, A., Weersing, V. R., Scahill, L., Woolston, J. (2012). Defining dropout from youth psychotherapy: How definitions shape the prevalence and predictors of attrition. *Child and Adolescent Mental Health, 17,* 76-85.

Welch, G., Hall, A., & Walkey, F. (1990). The replicable dimensions of the Beck Depression Inventory. *Journal of Clinical Psychology, 46,* 817-827.

Wierzbicki, M., & Pekarik, G. (1993). A meta-analysis of psychotherapy dropout. *Professional Psychology, Research, and Practice, 24,* 190-195.

Wetterneck, C. T., Little, T. E., Chasson, G. S., Smith, A. G., Hart, J. M., Stanley, M. A., & Björgvinsson, T. (2011). Obsessive-compulsive personality traits: How are they related to OCD? *Journal of Anxiety Disorders, 25,* 1024-1031.

Whittal, M. L., Woody, S. R., McLean, P. D., Rachman, S. J., & Robichaud, M. (2010). Treatment of obsessions: A randomized controlled trial. *Behaviour Research and Therapy, 48,* 295-303.

Wilhelm, S., & Steketee, G. (2006). *Cognitive therapy for obsessive-compulsive disorder: A guide for professionals.* Oakland, CA: New Harbinger Publications.

Wolgast, M., Lundh, L. G., & Viborg, G. (2011). Cognitive reappraisal and acceptance: An experimental comparison of two emotion regulation strategies. *Behaviour Research and Therapy, 49,* 858-866.

Table 1

*Sample Characteristics*

| Characteristic | | *n* | % |
|---|---|---|---|
| Gender | Male | 51 | 49.5 |
| | Female | 38 | 36.9 |
| Age (in years) | 16-25 | 42 | 47.7 |
| | 26-35 | 23 | 26.2 |
| | 36-45 | 18 | 20.4 |
| | 46 and above | 5 | 5.7 |
| Ethnicity | Caucasian | 74 | 71.8 |
| | African American | 2 | 1.9 |
| | Hispanic | 2 | 1.9 |
| | East Asian | 5 | 4.9 |
| | Indian | 2 | 1.9 |
| | Other | 2 | 1.9 |
| Marital status | Single | 57 | 55.3 |
| | Married or living with someone as though married | 24 | 23.3 |
| | Never married | 1 | 1.0 |
| | Separated | 1 | 1.0 |
| | Divorced | 3 | 2.9 |
| Yearly income | $0-29,999 | 10 | 13.9 |
| | $30,000-69,999 | 16 | 25.0 |
| | $70,000-99,999 | 8 | 11.1 |
| | $100,000 and above | 34 | 50.0 |

*Note.* Totals and percentages for demographic variables on original data before the multiple importation procedure.

Table 2

*Descriptive Data and Independent Samples t-tests*

| Dependent variable | Completers *M* (*SD*) | Dropouts *M* (*SD*) | *t* | *df* | Cohen's *d* | *p* |
|---|---|---|---|---|---|---|
| Y-BOCS | 26.95 (6.47) | 27.00 (4.11) | -0.45 | 39.73 | 0.01 | .66 |
| BDI-II | 24.39 (13.87) | 22.65 (12.08) | -0.03 | 35.76 | 0.13 | .98 |
| BABS | 7.28 (4.66) | 8.30 (6.29) | 0.07 | 41.67 | 0.18 | .94 |
| AAQ-II | 29.43 (6.20) | 31.38 (7.24) | -0.82 | 14.45 | 0.29 | .44 |
| ERQ – Suppression | 13.65 (5.25) | 13.38 (4.49) | -0.35 | 45.72 | 0.05 | .74 |
| ERQ - Reappraisal | 24.18 (7.87) | 29.00 (6.57) | -2.10 | 86.20 | 0.66 | .036 |

*Note.* Y-BOCS = Yale-Brown Obsessive Compulsive Scale; BDI-II = Beck Depression Inventory II; BABS = Brown Assessment of Beliefs Scale; AAQ = Acceptance and Action Questionnaire-II; ERQ – Suppression = Suppression subscale of the Emotion Regulation Questionnaire; ERQ – Reappraisal = Reappraisal subscale of the Emotion Regulation Questionnaire. Descriptive statistics are based on original data before the multiple imputation procedure.

Curriculum Vita

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**Professional publications:**

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**Professional positions held:**

**Intern- John Hopkins Hospital** 1800 Orleans St. Baltimore, MD 21287
- Work alongside Dr. Marco Grados in the Pediatric OCD and Tourette's Unit
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-Write intake and progress notes for patients
- Contribute to research on OCD genetics
- Work alongside medical students and residents on various research projects
- Attend divisional conferences on various issues in pediatric psychiatry

**Research Assistant- Towson University** 8000 York Road Towson, MD 21252
- Conduct qualitative research on Autism Services and Supports: Impacts on Families, a National Institute on Disability and Rehabilitation funded project
- Independently interviewed 8 family members of a child with autism about their family quality of life and mental health services
- Transcribed approximately 20 hour-long interviews of family members discussing experiences