Cognitive-Behavioral Therapy for Medication Nonresponders With Obsessive-Compulsive Disorder: A Wait-List–Controlled Open Trial

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Background: Cognitive-behavioral therapy (CBT) is generally recommended for obsessive-compulsive disorder (OCD) patients who have failed to respond to approved medications. However, few studies of the efficacy of CBT have selected patients who did not respond to medications.

Method: We selected 20 adult OCD (DSM-IV criteria) patients with a history of inadequate response to adequate doses of multiple medications, as well as a high rate of comorbid disorders. After a 1-month wait-list period, patients received 15 sessions of outpatient CBT incorporating exposure and ritual prevention.

Results: OCD severity (as measured with the Yale-Brown Obsessive Compulsive Scale) decreased significantly ($p < .05$) after treatment, and gains appeared to have been maintained over a 6-month follow-up period. Analysis of clinical significance indicated that 53% (8/15) of treatment completers met this criterion at posttreatment and 40% (6/15) met the criterion at 6-month follow-up. The sample was characterized as having generally poor insight and putting low effort into CBT; these factors significantly ($p < .05$) predicted degree of improvement.

Conclusion: CBT is a useful treatment for OCD patients who have failed to respond adequately to multiple serotonin reuptake inhibitor medications. However, these results were attenuated compared with previous trials. Patients with a long history of poor response to medication may have poor insight and/or not put sufficient effort into treatment; these factors are likely to diminish treatment outcome.

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The psychosocial treatment of choice for obsessive-compulsive disorder (OCD) is cognitive-behavioral therapy (CBT) incorporating exposure and ritual prevention (EX/RP).[1–3] Briefly, EX/RP consists of gradual, prolonged exposure to fear-eliciting stimuli or situations combined with strict abstinence from compulsive behavior. For example, a patient with an obsessive fear of being contaminated might be asked to touch objects of increasing "dirtiness," while simultaneously refraining from washing or cleaning, or a patient with an obsessive fear of hitting pedestrians with a car may be encouraged to drive down a busy city street without checking to see if anyone was harmed.[4] Numerous studies attest to the efficacy of EX/RP in adult outpatients with OCD. Effect sizes are large and comparable to those of serotonin reuptake inhibitor (SRI) medications.[5] In some of these EX/RP studies,[6–10] patients were required to be medication-free. In others, medication history was either not reported[11,12] or varied across patients.[13–15]

An expert consensus panel[1] recommended that patients who fail to respond adequately to SRI medication be given CBT. However, evidence that CBT is effective for medication nonresponders with OCD is sparse. Simpson and colleagues[16] published an open trial of EX/RP for 6 patients who had failed to respond to a single selective serotonin reuptake inhibitor (SSRI) medication; results in-

Table 1. Medication Dose Requirements for Study Inclusion[a]

Medication	Minimum Dose,[b] mg
Clomipramine	150
Fluoxetine	40
Sertraline	50
Fluvoxamine	200
Paroxetine	40
Citalopram	60
Venlafaxine	375

[a]To be included in the study, participants were required to document adequate trials of at least 2 of the above medications.
[b]Duration at minimum dose = 10 weeks.

Table 2. Baseline Information for 20 Obsessive-Compulsive Disorder Patients

Variable	Value
Age, mean (SD), y	39.35 (11.90)
Female, %	50
White, %	90
Married, %	56
Employed full time, %	50
College graduate, %	50
Comorbid Axis I disorder, %	75
No. of comorbid Axis I disorders, mean (SD)	1.5 (1.24)
Comorbid Axis II disorder, %	30
No. of previous medication trials, mean (SD)	4.60 (2.41)
At least 1 hospitalization, %	25
YBOCS score, mean (SD)	25.20 (5.66)
YBOCS insight item score, mean (SD)	1.90 (0.97)
CGI-S score, mean (SD)	5.22 (1.26)
SDS score, mean (SD)	18.11 (8.26)
BDI-II score, mean (SD)	19.28 (13.27)
HAM-D score, mean (SD)	12.18 (7.32)
STAI-T score, mean (SD)	56.72 (15.25)

Abbreviations: BDI-II = Beck Depression Inventory-II, CGI-S = Clinical Global Impressions-Severity of Illness scale, HAM-D = Hamilton Rating Scale for Depression, SDS = Sheehan Disability Scale, STAI-T = State-Trait Anxiety Inventory-Trait Version, YBOCS = Yale-Brown Obsessive Compulsive Scale.

dicated that severity of OCD symptoms decreased following EX/RP. Similar results were obtained in a larger open trial of 14 patients who had failed to respond to a single SSRI medication.[17] These results are encouraging; however, they do not address whether EX/RP is helpful for the even more challenging population of OCD patients with multiple failed medication trials. It may be that patients who have failed to respond to adequate trials of several medications will respond favorably to EX/RP. However, it is also possible that such patients are generally refractory and are unlikely to respond well to any treatment. This issue has obvious implications for clinical decision-making: to the extent that EX/RP is effective for medication nonresponders, it should be recommended to patients with multiple failed medication trials. However, if EX/RP is not effective for this group, it might be preferable to explore alternative treatment modalities such as pharmacologic augmentation and, for more severe cases, electroconvulsive therapy or psychosurgery.[1]

The purpose of the present study was to examine the efficacy of EX/RP for a sample of OCD patients who failed to respond to adequate trials of multiple SRI medications. In our sample selection, efforts were made to ensure that the sample was truly medication refractory and clinically challenging (e.g., comorbid Axis I and Axis II conditions). In sum, we sought specifically to recruit patients who would have been excluded from other EX/RP studies.[6–10] To help control for certain nonspecific effects such as the passage of time, repeated assessment, and enrolling in a clinical trial, we employed a wait-list–controlled open trial, in which a 1-month waiting period preceded EX/RP treatment. We predicted that EX/RP, but not the wait-list condition, would be associated with decreased OCD severity at posttreatment and at follow-up. We further predicted that EX/RP would be associated with decreased functional impairment, depression, and anxiety.

METHOD

Twenty adult outpatients participated in this study. Inclusion criteria were a primary diagnosis of OCD as measured by the Structured Clinical Interview for DSM-IV (SCID),[18] age of 18 to 65 years, at least moderate OCD as shown by a Yale-Brown Obsessive Compulsive Scale (YBOCS)[19,20] score of 16 or above, symptom duration of 1 year or greater, and at least 2 adequate trials of SRI medication (Table 1). Determination of adequate medication trials was based on published guidelines[1,21–23] and consultation with OCD pharmacology researchers. When unclear, medication history was verified by telephone consultations with patients' prescribing physicians and/or review of medical records.

Exclusion criteria were based on typical clinical decision-making and included a primary diagnosis other than OCD; current bipolar disorder, pervasive developmental disorder or mental retardation, psychotic disorder, or substance use disorder; current serious suicidal or homicidal ideation requiring immediate intervention; and concurrent psychotherapy. Participants were also required to remain on a stable dose of any medications for 2 months prior to study entry.

Baseline information for the sample is shown in Table 2. Average OCD severity was in the severe range, assessed via the YBOCS. The frequency of obsession subtypes, identified as among each patient's top 3 obsessions on the YBOCS checklist, was as follows: 50% aggressive (N = 10), 50% contamination (N = 10), 15% sexual (N = 3), 20% hoarding (N = 4), 15% religious (N = 3), 25% symmetry/exactness (N = 5), 5% somatic (N = 1), and 50% miscellaneous (N = 10). Compulsions, identified as among the top 3 on the YBOCS, were 45% washing (N = 9), 50% checking (N = 10), 25% repeating (N = 5), 20% counting (N = 4), 20% hoarding (N = 4), 25% mental (N = 5), and 30% miscellaneous (N = 6)

(percentages sum to greater than 100% because each patient's top 3 symptoms were counted).

Seventy-five percent (N = 15) of the sample met diagnostic criteria for at least 1 comorbid Axis I disorder (with a mean of 1.5 comorbid conditions for all patients). Fifty-five percent (N = 11) of the sample met criteria for a comorbid anxiety disorder, 45% (N = 9) met criteria for a depressive disorder, and 15% (N = 3) met criteria for another disorder. In addition, 30% (N = 6) of the sample met criteria for an Axis II condition, with 10% (N = 2) meeting criteria for paranoid personality disorder and 20% (N = 4) meeting criteria for avoidant personality disorder. The average patient was rated as "markedly ill" on the Clinical Global Impressions-Severity of Illness scale (CGI-S)[24] and reported mild-to-moderate depression on the Beck Depression Inventory-II (BDI-II)[25–27] and the Hamilton Rating Scale for Depression (HAM-D),[28–30] as well as high levels of trait anxiety on the State-Trait Anxiety Inventory-Trait Version (STAI-T).[31] Patients reported moderate-to-marked functional impairment on the Sheehan Disability Scale (SDS).[32]

Although our minimum number of medication trials for study entry was 2, patients reported an average of 4.6 medication trials for OCD, with 30% (N = 6) of patients reporting 6 or more trials. One hundred percent (N = 20) of patients had tried at least 1 SSRI, and 60% (N = 12) had tried clomipramine. In addition, 30% (N = 6) of patients reported a trial of benzodiazepines, 25% (N = 5) had tried antipsychotic medications, 10% (N = 2) had used anticonvulsant/mood stabilizers, 20% (N = 4) had tried atypical or tricyclic antidepressants other than clomipramine, 20% (N = 4) had tried anxiolytic medications other than benzodiazepines, and 5% (N = 1) had used a psychostimulant. Thus, we recruited a sample of OCD patients with long histories of suboptimal medication response and a high degree of Axis I and Axis II comorbidity.

Procedure

Assessments were conducted by doctoral-level psychologists and postdoctoral fellows with experience in the evaluation of OCD and anxiety disorders. Because there was only 1 treatment group in this study, evaluators were not blind to treatment condition. However, the evaluators were not otherwise involved with the patients' treatment. The evaluators explained the risks and benefits of participation, obtained written informed consent, and administered all measures prior to study entry. The study was approved by the Hartford Hospital Institutional Review Committee. Participants were instructed not to make any changes to their medications during the study, and this was assessed during each independent evaluation.[1]*

After enrolling in the study, patients were placed on a waiting list for 1 month, during which they had no planned contact with study personnel, although emergency telephone contacts were allowed. If an emergency occurred, patients were to be withdrawn from the study; this did not occur during the study. This wait-list period was shorter than the average duration of treatment (see below); the wait-list is used to establish baseline stability of symptoms rather than to provide a matched control condition.

At the end of the wait-list period, each patient met again with the independent evaluator, who readministered the study measures and ascertained that the patient still met study entry criteria.

Patients were then referred to an experienced doctoral-level psychologist or postdoctoral fellow for EX/RP treatment. Treatment was based on a published manual[4] that has been used successfully in previous outcome trials.[10,14] Patients received 15 sessions delivered in a flexible-dose schedule from 1 to 5 visits per week. As the efficacy of less frequent EX/RP has not been shown to differ from that of EX/RP delivered 5 times per week,[14] it was decided to use a flexible schedule to accommodate differences among patients and to reduce the likelihood of attrition. Treatment schedules were determined jointly by the patient and therapist with the aim of replicating sound clinical judgment used in "real world" practice, e.g., a more frequent schedule was recommended for patients with more severe OCD, although patients who could not attend multiple sessions per week were not excluded. The mean number of sessions per week was 2.00 (SD = 0.94), and mean duration of treatment was 9.69 (SD = 3.59) weeks.

EX/RP treatment consisted of the following components:

- ***Information gathering and treatment planning (1–2 sessions).*** In order to tailor treatment to meet individual patients' needs, the therapist collected a detailed assessment of the patient's symptoms, including a functional analysis of the antecedents and consequences of each symptom. Treatment planning consisted of providing education about the cognitive-behavioral model of OCD and generating a hierarchy of exposure situations from least distressing to most distressing, using the Subjective Units of Discomfort Scale (SUDS),[33] a 0-to-100 self-rating of anticipated distress.
- ***Exposure and ritual prevention (11–13 sessions).*** EX/RP sessions consisted of gradual exposure to

*Contrary to instructions, 3 patients started a new SRI medication during the treatment phase and 1 patient increased a medication dose. These 4 patients did not differ significantly from the others on any of the baseline measures. There was no significant difference in percentage of YBOCS decrease between the 2 groups, $t = 0.53$, $df = 13$, $p = .607$. Outcome effect sizes did not differ significantly whether these 4 patients were included or excluded from the analysis; therefore, to maximize statistical power, these patients were included in the analyses.

the items on the hierarchy, combined with instructions for strict abstinence from compulsive behavior. During an exposure, the therapist would monitor the patient's fear level using the SUDS scale; the patient was encouraged to remain in the situation until his/her SUDS level had decreased by 50% or an hour had passed, whichever came first. The next item on the hierarchy was initiated when the patient's SUDS level had decreased by 50% and the patient and clinician agreed that it was appropriate to begin the next exposure. In vivo exposure exercises were emphasized, although in most cases imaginal exposure to feared consequences was also used. Exposure in sessions was followed by homework assignments in which the patient was instructed to do similar tasks in a naturalistic setting. The therapist and patient attempted to reach the highest item on the exposure hierarchy by the sixth EX/RP session in order to allow sufficient time for the patient's fear to diminish.

- ***Relapse prevention (1–2 sessions).*** After EX/RP was complete, the therapist helped the patient prepare to manage his/her symptoms without relying on the therapist. The patient was instructed in "normal" behavior, e.g., how much washing or checking is appropriate. Critical situations were discussed (e.g., what happens if the patient smells something burning), and the patient was instructed in appropriate action. The patient and therapist also discussed the possible future emergence of new symptoms not addressed by treatment and how these should be managed.
- ***Other interventions.*** Because one aim of this study was to test the use of EX/RP in a more naturalistic setting, clinicians were permitted to use other interventions as needed, as long as these did not interfere with the use of EX/RP. Supplemental interventions included motivational interviewing strategies for resistant patients,[34] Socratic dialogue and behavioral experiments to test the validity of erroneous beliefs,[6] and acceptance-based strategies for coping with intrusive thoughts.[35,36] The percentage of time spent on such interventions was not collected; however, treatment was consistent with current "best-practice" models of EX/RP[3] in which exposure exercises and abstinence from rituals are the clear focus of treatment, with other interventions used in an ad hoc manner to supplement EX/RP strategies.

At the last therapy session, the treating clinician rated the degree of patient effort on a 5-point scale from 0, "made no effort to do EX/RP," to 4, "put their best effort into EX/RP." This procedure is similar to that used in other treatment outcome studies.[37,38] The first author, who supervised all cases, made an identical rating based on case consultation and chart review of completed homework assignments; interrater reliability was good (r = .82). Immediately following EX/RP treatment, patients met again with the independent evaluator, who readministered all study measures. This assessment was repeated 1, 3, and 6 months after treatment.

Therapists were given written instructions for each treatment session and recording forms to document patient activity. The first author, who has served as a study clinician in previous outcome trials using the same manual,[10,39] supervised all cases and met at least once per week with each study clinician to review treatment procedures and patient response. The first author assigned a treatment fidelity rating from 0 (poor fidelity) to 5 (excellent fidelity) for each patient's treatment based on a session-by-session comparison with the manual.

RESULTS

Overview of Analyses

Examination of interviewer and self-report measures at intake indicated that all measures were normally distributed. Therefore, parametric analyses were used when appropriate. The YBOCS, CGI-S, SDS, HAM-D, BDI-II, and STAI-T results were analyzed using a repeated-measures analysis of variance (ANOVA), with time as the repeated measure. Significant ANOVAs were followed up using within-group t tests comparing the pre– and post–wait-list timepoints and the post–wait-list and posttreatment timepoints. To determine the degree of long-term gain, each of the 3 follow-up assessments was compared with pretreatment. To examine the degree of relapse, each follow-up assessment was compared with posttreatment. Predictors of response were examined using a stepwise regression analysis.

Dropout Analyses

From our initial N of 20, 1 patient (5%) dropped out during the wait-list period, leaving an N of 19. Four more patients (21% of those remaining) dropped out during EX/RP treatment, leaving an N of 15, which is consistent with the dropout rates in other studies.[10,13,14] One patient (6.7% of those remaining) was lost to follow-up at the 1-month point, leaving an N of 14; this patient returned at 3 months. Another patient (6.7% of those remaining) was lost to follow-up at the 3-month point, leaving an N of 14. This patient returned for the 6-month follow-up, for an N of 15. Of the 5 patients who discontinued prior to ending treatment, 1 (20%) cited an unwillingness to comply with EX/RP as the reason; the remainder cited scheduling problems or changes in life circumstance.

For the intent-to-treat (ITT) analyses, missing data due to dropouts were replaced using the last observation

Table 3. Outcome Measures for Completer Sample (N = 15)

Scale	Pretreatment, Mean (SD)	Post–Wait-List, Mean (SD)	Posttreatment, Mean (SD)	1-Month Follow-Up, Mean (SD)	3-Month Follow-Up, Mean (SD)	6-Month Follow-Up, Mean (SD)	F	η^2
YBOCS	25.20 (5.66)	25.11 (5.49)	15.93 (9.02)[a]	17.14 (8.43)[a]	18.07 (10.29)[a]	18.67 (10.21)[a,b]	15.64[c]	0.83
CGI								
Severity of Illness	5.22 (1.26)	5.32 (1.25)	4.00 (1.77)[a]	4.14 (1.79)[a]	4.29 (1.90)[a]	4.33 (1.91)[a]	8.37[c]	0.78
Improvement	…	2.95 (0.23)	4.53 (1.13)[a]	4.43 (1.02)[a]	4.07 (1.33)[a,b]	4.33 (1.23)[a]	11.58[c]	0.77
SDS								
Work	6.17 (3.22)	5.77 (3.22)	5.13 (3.94)	5.14 (3.63)	4.27 (3.58)	5.20 (3.39)		
Social	5.33 (3.25)	4.54 (3.55)	4.27 (3.99)	4.36 (2.23)	3.92 (3.40)	4.33 (3.04)		
Family/home	6.61 (2.45)	6.15 (1.86)	4.13 (3.02)	5.07 (3.22)	5.17 (2.92)	5.33 (3.06)		
Total	18.11 (8.26)	16.46 (7.70)	13.53 (9.50)	14.57 (9.32)	13.00 (9.31)	14.87 (9.15)	1.02[d]	0.88
BDI-II	19.28 (13.27)	19.20 (13.87)	9.40 (10.51)[a]	12.57 (12.83)	13.92 (15.19)[b]	15.13 (14.86)[b]	3.86[c]	0.66
HAM-D	12.18 (7.32)	10.68 (6.79)	8.53 (8.31)	9.07 (6.38)	8.50 (6.67)	9.20 (7.39)	2.89[c]	0.68
STAI-T	56.72 (15.25)	55.87 (14.38)	46.73 (13.13)[a]	49.79 (14.98)	50.42 (17.03)[b]	51.53 (15.90)[b]	5.48[c]	0.92

[a]Significantly different from post–wait-list timepoint.
[b]Significantly different from posttreatment (all p values < .05).
[c]Significant effect of time.
[d]F value refers to the scale × time interaction.
Abbreviations: BDI-II = Beck Depression Inventory-II, CGI = Clinical Global Impressions Scale, HAM-D = Hamilton Rating Scale for Depression, SDS = Sheehan Disability Scale, STAI-T = State-Trait Anxiety Inventory-Trait Version, YBOCS = Yale-Brown Obsessive Compulsive Scale.

Table 4. Outcome Measures for Intent-to-Treat Sample (N = 19)

Scale	Pretreatment, Mean (SD)	Post–Wait-List, Mean (SD)	Posttreatment, Mean (SD)	1-Month Follow-Up, Mean (SD)	3-Month Follow-Up, Mean (SD)	6-Month Follow-Up, Mean (SD)	F	η^2
YBOCS	25.20 (5.66)	25.35 (5.45)	18.15 (8.98)[a]	18.80 (8.23)[a]	19.75 (9.31)[a]	20.20 (9.46)[a,b]	12.92[c]	0.55
CGI								
Severity of illness	5.22 (1.26)	5.28 (1.27)	4.28 (1.67)[a]	4.22 (1.63)[a]	4.44 (1.65)[a]	4.50 (1.79)[a]	7.28[c]	0.54
Improvement	…	2.95 (0.23)	4.21 (1.18)[a]	4.16 (1.07)[a]	3.89 (1.24)[a]	4.05 (1.22)[a]	11.07[c]	0.60
SDS								
Work	6.17 (3.22)	5.95 (3.25)	5.15 (3.76)	4.95 (3.55)	5.00 (3.50)	5.20 (3.33)		
Social	5.33 (3.25)	5.10 (3.58)	4.60 (3.79)	4.45 (3.28)	4.70 (3.23)	4.65 (3.07)		
Family/home	6.61 (2.45)	6.35 (2.43)	4.70 (2.99)	5.30 (2.99)	5.70 (2.68)	5.60 (2.89)		
Total	18.11 (8.26)	17.40 (8.56)	14.70 (9.07)[c]	14.95 (8.95)[c]	15.15 (9.02)[c]	15.45 (8.95)[c]	2.50[c,d]	0.35
BDI-II	18.25 (12.95)	19.40 (13.82)	11.45 (11.45)[a]	13.35 (12.64)[a]	14.10 (13.51)[a]	15.75 (14.15)[a,b]	6.63[c]	0.41
HAM-D	12.18 (7.32)	10.90 (7.02)	9.01 (7.52)	9.35 (6.06)	9.68 (6.37)	10.24 (6.86)	2.54[c]	0.35
STAI-T	52.20 (20.16)	54.70 (14.91)	46.65 (13.40)[a]	48.70 (14.45)[a]	49.35 (15.04)[a]	50.25 (15.61)[b]	2.53[c]	0.47

[a]Significantly different from post–wait-list timepoint.
[b]Significantly different from posttreatment (all p values < .05).
[c]Significant effect of time.
[d]F value refers to the main effect of time.
Abbreviations: BDI-II = Beck Depression Inventory-II, CGI = Clinical Global Impressions Scale, HAM-D = Hamilton Rating Scale for Depression, SDS = Sheehan Disability Scale, STAI-T = State-Trait Anxiety Inventory-Trait Version, YBOCS = Yale-Brown Obsessive Compulsive Scale.

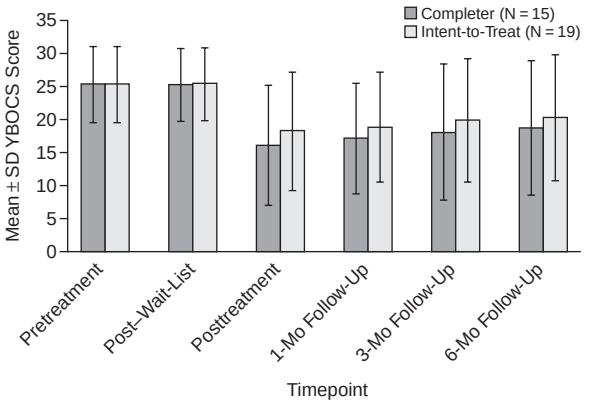
carried forward. Table 3 shows the outcome measures at each timepoint for the completer sample; Table 4 shows the same measures for the ITT sample. Except where noted, Tables 3 and 4 show the F value for the main effect of time for each measure, as well as comparisons between each timepoint and the end of the wait-list period (no measure changed significantly during the wait-list period) and between each follow-up point and posttreatment (for relapse analyses).

Completer Analyses

As shown in Figure 1 and Table 3, during the wait-list period, the completer sample did not improve on any measure, indicating baseline stability of symptoms. At posttreatment, patients showed a significant decrease in OCD severity (YBOCS), with a 39.5% decrease in YBOCS scores. Global ratings of illness (CGI-S) also decreased, with 66.6% of patients rated "much improved" or "very much improved" on the CGI-Improvement (CGI-I). There was no significant change with treatment in terms of functional impairment (SDS). Self-reported depression (BDI-II) decreased at posttreatment; interviewer-rated depression (HAM-D) showed an overall significant decrease but was not associated with any significant pairwise comparisons. There was a treatment-related decrease in trait anxiety (STAI-T).

At follow-up, OCD severity (YBOCS) remained below baseline levels. There was no evidence of relapse at 1 month or 3 months. There was some increase in symptoms at 6 months, although scores remained significantly below baseline levels. From the end of the wait-list period to the 1-month, 3-month, and 6-month follow-ups, per-

Figure 1. YBOCS Scores for the Completer and Intent-to-Treat Samples



Abbreviation: YBOCS = Yale-Brown Obsessive Compulsive Scale.

cent reductions in YBOCS score were 35.7%, 31.8%, and 30.2%, respectively. Global severity of illness (CGI-S) remained significantly lower at 1-month follow-up, 3-month follow-up, and 6-month follow-up, with no evidence of relapse; the percentages of patients labeled "much improved" or "very much improved" (CGI-I) across the follow-up period were as follows: 1 month, 50.0% (7/14); 3 months, 35.7% (5/14); and 6 months, 40.0% (6/15). There was no change in functional impairment (SDS), trait anxiety (STAI-T), or self-reported depression (BDI-II).

ITT Analyses

As shown in Figure 1 and Table 4, during the wait-list period, the ITT sample also did not improve on any measure. At posttreatment, YBOCS scores decreased significantly, with a mean decrease of 29.6% from the end of the wait-list period. Global severity of illness (CGI-S) showed a significant decrease at posttreatment, with 52.6% of patients (10/19) rated "much improved" or "very much improved" (CGI-I). Unlike the completer sample (most likely due to increased power), the ITT sample showed a decrease in functional impairment (SDS) at posttreatment. There was a significant decrease in self-reported depression (BDI-II); interviewer-rated depression (HAM-D) showed an overall decrease over time, with no significant pairwise comparisons. There was also a decrease in trait anxiety (STAI-T).

At follow-up, YBOCS scores remained significantly below baseline levels, although scores increased somewhat at 6 months. From the end of the wait-list period to the 1-month, 3-month, and 6-month follow-ups, percent reductions were 26.64%, 23.36%, and 22.65%, respectively. Global severity of illness (CGI-S) remained lower than at pretreatment, with no evidence of relapse. The percentage of ITT patients rated as "much improved" or "very much improved" (CGI-I) at 1-month follow-up was 42.1% (8/19); at 3-month follow-up, 31.6% (6/19); and at 6-month follow-up, 31.6% (6/19). Functional impairment (SDS) remained significantly below baseline levels at 1- and 3-month follow-up; however, by 6 months this score had reverted to baseline levels. Self-reported depression (BDI-II) remained significantly below baseline levels during the follow-up period, although scores increased somewhat at 6 months. Trait anxiety (STAI-T) remained decreased from the post–wait-list timepoint at the 1- and 3-month follow-ups, but not at 6-month follow-up.

Clinical Significance

We also examined whether patients showed clinically significant change in OCD symptoms (YBOCS) following treatment. Using methods described by Jacobson and Truax,[40] we defined a clinically significant response as one exceeding a specified Reliable Change Index (RCI) and in which YBOCS scores fell within the normal range. To determine the normal (nonpatient) range of YBOCS scores, we used data from Steketee and colleagues[41] to identify a cutoff score of 14.4. To determine the test-retest reliability of the YBOCS in the present sample, we used the Pearson correlation between scores at the beginning and the end of the wait-list period (r = .92). To test clinical significance within a 95% confidence interval, we required an RCI of 1.96. In the completers sample, the percentages of patients meeting criteria for clinically significant change at post–wait-list, posttreatment, and 1-, 3-, and 6-month follow-up were 0% (0/19), 53.3% (8/15), 28.6% (4/14), 28.6% (4/14), and 40.0% (6/15), respectively. For the ITT sample, the percentages were 0% (0/19), 26.3% (5/19), 15.8% (3/19), 10.5% (2/19), and 15.8% (3/19), respectively.

Treatment Process Measures

The mean treatment fidelity rating (from 0–5) was 4.47 (SD = 0.64), indicating good therapist adherence to the treatment manual. Examination of clinician records indicated that 60.0% (9/15) of treatment completers were exposed to the most difficult (i.e., highest SUDS rating) item on their exposure hierarchy. Of these completers, 77.8% (7/9) completed this exposure by the sixth exposure session, as recommended in the treatment manual.[4]

Mean clinician rating of effort (from 0–4) was 1.61 (SD = 1.20), indicating that patients were rated as putting forth between "minimal effort" and "some effort." Correlational analyses revealed that clinician-rated effort did not correlate significantly with any baseline measures except YBOCS item 11 (the insight measure), r = –.51, indicating that patients with poorer insight were rated as putting forth less effort into treatment. The mean score on YBOCS item 11 was 1.90 (SD = 0.97), indicating that patients were rated as having "fair" insight. Twenty percent of patients (4/20) were rated as having "poor insight," and 5% (1/20) were rated as "lacks insight, delusional."

Table 5. Correlations Between Potential Predictor Variables, Percentage Reduction in YBOCS Score, and CGI-I Score

	Posttreatment		6-Month Follow-Up	
Variable	YBOCS Reduction	CGI-I	YBOCS Reduction	CGI-I
Clinician-rated effort	0.53*	0.58*	0.70*	0.65*
YBOCS total score	–0.52*	–0.55*	–0.62*	–0.51*
Age	0.24	0.28	0.25	0.37
No. of hospitalizations	–0.31	–0.36	–0.38	–0.39
SDS total score	–0.38	–0.25	–0.52*	–0.37
BDI-II score	–0.28	–0.35	–0.34	–0.25
STAI-T score	–0.27	–0.37	–0.52*	–0.51*
HAM-D score	–0.36	–0.44	–0.50*	–0.39
No. of medication trials	–0.35	–0.32	–0.52*	–0.46*
No. of Axis I diagnoses	0.11	0.08	0.01	0.19
No. of Axis II diagnoses	0.42	0.35	0.14	0.11
YBOCS insight item score	–0.59*	–0.55*	–0.60*	–0.59*
Frequency of sessions	–0.03	0.11	–0.13	0.15
Treatment fidelity rating	–0.05	–0.17	–0.11	–0.12
Posttreatment reduction in YBOCS score	…	…	0.81*	0.60*
Posttreatment CGI-I score	…	…	0.81*	0.69*

*p < .05.
Abbreviations: BDI-II = Beck Depression Inventory-II, CGI = Clinical Global Impressions scale, HAM-D = Hamilton Rating Scale for Depression, SDS = Sheehan Disability Scale, STAI-T = State-Trait Anxiety Inventory-Trait Version, YBOCS = Yale-Brown Obsessive Compulsive Scale.

Predictors of Outcome

Because of the small sample size in the present study, examination of predictors is considered exploratory only and awaits replication in a larger sample. We calculated Pearson correlation coefficients for completers between various measures and 2 key outcome variables: percentage reduction in total score on the YBOCS and CGI-I score. These correlations were examined at both posttreatment and 6-month follow-up, as those variables predicting immediate treatment success may not necessarily predict long-term gains. As shown in Table 5, most variables were not significantly correlated with outcome. However, clinician-rated effort, pretreatment OCD severity (as shown by the YBOCS), and insight were significantly related to all outcomes; in each case, patients whom clinicians rated as putting forth greater effort, whose initial OCD was less severe, and who demonstrated greater insight into the senselessness of their symptoms showed more favorable outcomes. Other measures (SDS, STAI-T, HAM-D, number of previous medication trials) showed some significant correlations with outcome, but the pattern was less clear. Posttreatment outcome significantly correlated with follow-up outcome ($p < .05$).

To examine the specific relationship of baseline and process variables to treatment outcome, we conducted 4 stepwise regression analyses, 1 each predicting YBOCS and CGI-I at posttreatment and follow-up. Because of the small sample size, we limited the number of predictor variables to those that had shown a significant zero-order correlation with outcome. In the prediction of YBOCS reduction at posttreatment, clinician-rated effort, pretreatment YBOCS score, and the insight rating were entered as predictor variables. The overall prediction was significant; adjusted $R^2 = .298$, $F = 6.94$, df = 1,13; $p = .021$. Insight rating was a significant predictor ($\beta = –.590$, $p = .021$). The other variables did not emerge as significant predictors. In the prediction of YBOCS reduction at 6-month follow-up, clinician-rated effort, pretreatment YBOCS score, insight, STAI-T, HAM-D, number of medication trials, posttreatment YBOCS reduction, and posttreatment CGI-I score were entered as predictor variables. The overall prediction was significant; adjusted $R^2 = .775$, $F = 19.90$, df = 2,9; $p < .001$. In this analysis, posttreatment YBOCS reduction was a significant predictor ($\beta = .831$, $p = .001$). Adding STAI-T score accounted for an additional 8.5% of the variance ($\beta = –.373$, $p = .036$). In the prediction of CGI-I at posttreatment, clinician-rated effort, pretreatment YBOCS score, and insight rating were entered as predictor variables. The overall prediction was significant; adjusted $R^2 = .291$, $F = 6.76$, df = 1,13; $p = .022$. Clinician-rated effort was the only significant predictor ($\beta = .585$, $p = .022$). In the prediction of CGI-I at follow-up, clinician-rated effort, pretreatment YBOCS score, STAI-T score, number of medication trials, insight rating, posttreatment YBOCS score reduction, and posttreatment CGI-I score were entered as predictor variables. The overall prediction was significant; adjusted $R^2 = .433$, $F = 10.91$, df = 1,12; $p = .006$. Again, clinician-rated effort was the only significant predictor ($\beta = –.690$, $p = .006$).

DISCUSSION

The obtained findings suggest that CBT incorporating EX/RP is somewhat helpful for OCD patients with a high frequency of comorbid disorders who have failed to respond to adequate trials of multiple medications. The 39% average decrease in YBOCS scores at posttreatment and the 30% average decrease at 6-month follow-up are comparable to the 39% decrease seen in a recent large trial of CBT for medication-naive patients.[10] Although there was some increase in YBOCS scores during the follow-up period, mean YBOCS scores still remained well below baseline, indicating sustained treatment gains. Thus, the obtained results are generally consistent with the expert consensus guidelines'[1] suggestion to use CBT for patients who have failed to respond to adequate trials of multiple medications. Patients who are medication-resistant, even those with comorbid Axis I and Axis II disorders, may respond to CBT.

However, the results also suggest that expectations for improvement may need to be lowered somewhat for these patients or that additional treatment beyond 15 sessions of EX/RP is indicated. In the present study, although 67% of patients were rated as "much improved" or "very much

improved" on the CGI at posttreatment, only 40% received this rating at 6-month follow-up. By comparison, Kozak et al.[10] reported that 85% of treatment-naive patients received this rating at posttreatment. One possible contributor to this discrepancy is that the CGI reflects global functioning rather than only OCD symptoms; therefore, comorbid disorders (that were excluded from the Kozak et al. study) likely attenuated global impressions of improvement. Although most studies do not report the frequency of clinically significant change, our finding that 53% of treatment completers were identified as clinically improved stands in contrast to previous findings of 74% to 80%.[42]

Thus, although OCD symptoms decreased following treatment and remained improved (compared with baseline) during follow-up, the rate of clinically significant, long-term change appears to be lower than those obtained using more rarified samples. The patients' already high levels of depression, trait anxiety, and functional impairment all showed an immediate decrease following treatment, but appeared to return to baseline during the follow-up phase. Thus, although CBT resulted in significant and sustained gains in OCD symptoms, the sample remained chronically depressed, anxious, and impaired. One explanation for this discrepancy is that EX/RP treatment does not directly address symptoms such as depression and trait anxiety, and therefore additional CBT treatment aimed at these issues might have strengthened the overall treatment response. An alternative explanation is that the present sample represents a generally chronic and treatment-refractory population who are likely to exhibit continued mental health difficulties even after successful OCD treatment. This conclusion would be consistent with previous research showing that treatment resistance increases with duration of OCD, number of OCD episodes, and number of clinical relapses after initial treatment.[43] Informally, we suspect that both explanations may be true for different patients. Some medication-resistant OCD patients may do quite well with EX/RP, perhaps with the addition of some augmentive CBT and/or pharmacotherapy to address comorbid issues. For others, however, multiple failures to respond to medications are indicative of a more severe and chronic illness that is likely to respond poorly to any intervention. This issue obviously awaits empirical testing.

The present results contrast with those of an uncontrolled report by Franklin and colleagues.[42] In a retrospective examination of clinic patients, those who were taking SRI medications showed a treatment response roughly equivalent to that of patients not treated with medications (a 63% and 65% YBOCS reduction at posttreatment, respectively). One possible reason for this discrepancy is that the treatment in the Franklin et al. study was delivered on a daily basis, whereas in the present study, the average number of sessions per week was 2. We did not find a significant relationship between the frequency of sessions and treatment outcome; however, the small sample size may have obscured an actual relationship. Similarly, Abramowitz et al.[14] also found no difference in outcome between twice-weekly and intensive treatment, but lack of random assignment precludes firm conclusions about this result. It may be that more treatment-refractory patients require more intensive forms of treatment. Another potential difference between our study and that of Franklin et al.[42] is that we included only patients who documented 2 or more adequate trials of SRI medications (with a mean of 4.6 previous trials). In contrast, Franklin et al.[42] required only 1 trial of medication, relied on patient self-report only, and did not require an adequate dose. Therefore, our sample may represent a higher degree of treatment nonresponse. Finally, our sample is marked by a high rate of depressive disorders and a 50% unemployment rate. The Franklin et al.[42] study did not formally measure depressive disorders; therefore, the rate of depression is unknown. However, other research from the same sample[44] indicated that 13% of patients had a BDI score of 30 or greater; by comparison, 33% of the present sample met this criterion. That study also reported that patients with high levels of depression showed an attenuated response to EX/RP, a finding that is consistent with other research.[6,45–47] Their sample, collected from a fee-for-service clinic, had only a 27% unemployment rate. Thus, our sample may have been generally lower-functioning with a higher degree of comorbidity.

The present sample is notable for its relatively poor insight into the senselessness of OCD symptoms, as well as low clinician ratings of effort; these 2 factors were significantly related to one another. Thus, it might be argued that this population contains a large number of patients who do not fully understand the irrationality of their obsessions and their compulsions and that this lack of insight leads them to put forth less effort during treatment. Both of these measures were related to treatment outcome, a finding that is consistent with previous work.[37,48,49] Thus, the most obvious explanation for the attenuated treatment response in the present study is that some patients did not fully recognize the irrationality of their symptoms and thus did not put sufficient effort into the treatment. Compared with pharmacotherapy and other forms of psychotherapy, EX/RP is a rather demanding treatment that requires a large time commitment, adherence to homework assignments, and a willingness to tolerate discomfort during exposure exercises. In many cases, patients seemed to show an unwillingness to fully commit to EX/RP despite therapists' best efforts to motivate them, which even included incorporating elements of motivational interviewing and additional psychoeducation.[50] We note, however, that our assessment of insight was based on a single item from the YBOCS. A more comprehensive evaluation of insight might have been obtained using standardized mea-

sures such as the Overvalued Ideas Scale[51] or the Brown Assessment of Beliefs Scale.[52]

It is also possible that recurrent medication trials with suboptimal response lead to negative expectations or hopelessness about future treatment and that engaging such patients in active, directive treatment will require additional efforts that have not yet been systematically explored. It is also entirely possible that an early positive response to CBT serves as a motivator for additional work and that failure to achieve early success caused some patients to become demoralized and put forth less effort.

The present study does meet several of Franklin and Foa's[2] criteria for an appropriate treatment outcome study, including clearly defined inclusion/exclusion criteria, reliable and valid diagnostic methods, assessments by trained evaluators using reliable and valid outcome measures, manualized treatment, measures of treatment adherence, and EX/RP that meets acceptable clinical practice standards as suggested by expert consensus. Interpretation of these results is limited, however, by the study's small sample size, and the present data should be considered preliminary. Furthermore, the lack of random assignment to a control group places limits on the degree to which symptom improvement can be attributed to the direct effects of EX/RP rather than to nonspecific effects of treatment. Our wait-list condition establishes baseline severity of symptoms, but for ethical reasons (withholding treatment) was not as long as the treatment condition, and therefore its use as a control condition is limited. On the other hand, previous studies have shown that OCD is characterized by minimal response to placebo.[10,53,54] It is noted that our assessment of treatment fidelity was based on chart review and supervision. Therefore, adherence ratings were not wholly independent from clinicians' reports. It would have been preferable to use audiotapes or videotapes of each session for a more precise fidelity assessment.

The results of this open trial suggest that a randomized controlled trial of EX/RP against a no-treatment, placebo, or alternative treatment condition is indicated. It might be particularly useful to compare second-line CBT with pharmacologic augmentation such as low-dose neuroleptics or atypical antipsychotic medications.[55–58] In addition, the rather modest improvement in global impressions suggests that altering the treatment protocol might strengthen the effects of EX/RP. The treatment might be lengthened to accommodate the high average symptom severity. Alternatively or in addition, it might be helpful to incorporate other CBT elements to address comorbid issues. These elements might include cognitive therapy, problem-solving therapy, or behavioral activation therapy to address depressive symptoms or anxiety management training to address high levels of trait anxiety. However, these modifications await a larger study in which the predictors of nonresponse to CBT can be identified more clearly.

Drug names: citalopram (Celexa), clomipramine (Anafranil and others), fluoxetine (Prozac and others), paroxetine (Paxil and others), sertraline (Zoloft), venlafaxine (Effexor).

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