# Response Versus Remission in Obsessive-Compulsive Disorder

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***Objective:*** To investigate rates of response and remission in adults with obsessive-compulsive disorder (OCD) after 12 weeks of evidence-based treatment.

***Method:*** Post hoc analyses of response and remission were conducted using data from a multisite, randomized, controlled trial comparing the effects of 12 weeks of exposure and ritual prevention (EX/RP), clomipramine (CMI), their combination (EX/RP + CMI), or pill placebo (PBO) in 122 adults with OCD (DSM-III-R or DSM-IV criteria). Response was defined as a decrease in symptoms; remission was defined as minimal symptoms after treatment. Different response and remission definitions were constructed based on criteria used in prior studies. For each definition, the proportion of responders or remitters in each treatment group was then compared.

***Results:*** There were significant differences ($p < .05$) among the 4 treatment groups in the proportion of responders and remitters. In pairwise comparisons, EX/RP + CMI and EX/RP each produced significantly more responders and remitters than PBO; CMI produced significantly more responders and remitters than PBO for some definitions but not for others. When remission was defined as a Yale-Brown Obsessive Compulsive Scale (YBOCS) score of 12 or less, significantly more EX/RP + CMI (18/31 [58%]) and EX/RP (15/29 [52%]) patients entering treatment achieved remission than either CMI (9/36 [25%]) or PBO (0/26 [0%]) patients. However, even in treatment completers, many CMI and some EX/RP + CMI and EX/RP patients did not achieve remission (remission rates for YBOCS ≤ 12: EX/RP + CMI = 13/19 [68%]; EX/RP = 15/21 [71%]; CMI = 8/27 [30%]; PBO = 0/20 [0%]).

***Conclusion:*** EX/RP (with or without CMI) can lead to superior treatment outcome compared with CMI alone in OCD patients without comorbid depression. However, many OCD patients who receive evidence-based treatment do not achieve remission.

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In randomized, controlled trials, 2 treatments have proven to be efficacious for adults with obsessive-compulsive disorder (OCD)[1]: pharmacotherapy with serotonin reuptake inhibitors (SRIs, i.e., clomipramine and the selective SRIs) and cognitive-behavioral therapy consisting of exposure and ritual prevention (EX/RP). In these trials, SRIs and EX/RP each produced significantly greater symptom reduction and more treatment responders than control treatments. However, most trials required only a partial reduction in symptoms for a patient to be categorized as a treatment responder. The reality is that many responders, despite successful treatment, continue to experience clinically significant OCD symptoms that can affect their functioning and quality of life.[2,3] Few studies have focused on the number of OCD patients who achieve remission, a condition defined by Frank et al.[4] in which a patient "no longer meets syndromal criteria for the disorder and has no more than minimal symptoms."[4(p853)] No randomized, controlled trial comparing SRI and EX/RP treatments has examined which treatment helps more OCD patients achieve remission.

  

We recently completed a randomized, controlled trial that compared the relative efficacy of EX/RP, clomipramine (CMI), their combination (EX/RP + CMI), and pill placebo (PBO) in OCD patients without comorbid depression.[5] In patients who entered treatment, all active treatments produced significantly more responders than PBO, EX/RP + CMI produced significantly more responders than CMI, and EX/RP did not differ significantly from CMI. However, both EX/RP + CMI and EX/RP produced more excellent responders than CMI, indicating a greater magnitude of response. These findings are limited by 2 considerations. First, the response rates are based on the Clinical Global Impressions-Improvement scale (CGI-I)[6] only: response was defined a priori as a CGI-I rating of much or very much improved; excellent response was defined as a rating of very much improved. Although the CGI-I has been used widely in clinical trials, its reliability has been questioned, especially when compared with validated OCD measures like the Yale-Brown Obsessive Compulsive Scale (YBOCS)[7,8] or with other methods for determining response like the Reliable Change Index (RCI).[9] A second limitation of our prior analysis is that we studied response (i.e., degree of change from baseline) but not remission (i.e., no more than minimal OCD symptoms at the end of treatment).

The objective of this study was to investigate rates of response and remission after 12 weeks of EX/RP, CMI, or their combination in patients with OCD. Because various response definitions have been used in the OCD literature, we first examined whether those based on the YBOCS or RCI produced results similar to those based on the CGI-I when applied to our data set. Because there are no standard criteria for remission in OCD, we then examined different definitions based on the YBOCS that have been used in prior studies. Based on our prior findings,[5] we hypothesized that all active treatments would produce significantly higher response and remission rates than PBO but that EX/RP + CMI and EX/RP would each produce significantly higher rates of remission than CMI in patients with OCD.

## METHOD

### Overview

This study presents post hoc analyses of data from a randomized, controlled trial in adult outpatients with OCD that compared the treatment effects of EX/RP, CMI, their combination (EX/RP + CMI), or PBO. The study was conducted at the New York State Psychiatric Institute (New York), the Center for the Treatment and Study of Anxiety (Philadelphia, Pa.), and the Anxiety Disorders Research Program (Winnipeg, Manitoba). Each site's institutional review board approved the study; participants provided written, informed consent after full description of the study protocol. A detailed description of the study, the sample recruited, and the outcome is presented elsewhere.[5,10] A brief description of the original study design is presented below, followed by the methods used for these analyses.

### Original Study Design

Eligible patients were between the ages of 18 and 70 years, had DSM-III-R or DSM-IV OCD for at least 1 year as their primary psychiatric diagnosis, and had OCD of at least moderate severity (i.e., a YBOCS total score of at least 16). Patients were excluded for comorbid psychiatric conditions that interfered in the patient's life and required immediate treatment. These conditions included mania, psychosis, current major depressive episode plus a Hamilton Rating Scale for Depression (HAM-D)[11] score of greater than 18, prominent suicidal ideation, or substance abuse or dependence within the past 6 months. Comorbid anxiety disorders were permitted as long as they did not require immediate treatment and were clearly secondary in clinical importance to the OCD. Patients were also excluded for current schizotypal or borderline personality disorder, previous CMI treatment of 150 mg/day or more for more than 4 weeks, previous intensive EX/RP (i.e., at least 3 times per week for 2 or more weeks), and/or a significant medical problem.

Patients were randomly assigned to receive EX/RP, CMI, EX/RP + CMI, or PBO for 12 weeks (weeks 0–12). Patients receiving CMI or PBO treatment were seen weekly for 30 minutes by a psychopharmacologist. The dosage schedule was fixed for the first 5 weeks, starting at 25 mg/day and increasing to 200 mg/day (or 4 pills/day), with an optional increase to 250 mg/day (or 5 pills/day) thereafter if indicated and tolerated. Increases could be delayed or doses lowered for adverse events. EX/RP was delivered intensively during the first 4 weeks (i.e., 2 information gathering sessions, 15 2-hour exposure sessions in 3 weeks, 2 home visits) following the procedures outlined by Kozak and Foa[12]; for the remaining 8 weeks, patients met weekly with their therapists for 45 minutes to review OCD problems and EX/RP procedures, but no in-session exposure exercises were conducted. Patients receiving EX/RP + CMI met individually with both a therapist and a psychopharmacologist.

Patients were assessed every 4 weeks by independent evaluators who were blind to treatment assignment. Measures included the YBOCS and the CGI-I. Both measures assess symptom severity in the prior week. The original study's definition of response was a rating of much improved or very much improved on the CGI-I at week 12 relative to week 0.

### Post Hoc Analysis

Different definitions of response and remission were constructed based on criteria used in prior OCD studies.

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Response definitions were based on varying degrees of change in OCD symptoms at week 12 compared with week 0. Remission definitions were based on OCD status at week 12.

The following definitions of response were compared: (1) a CGI-I rating at the end of treatment (week 12) of much improved or very much improved, used in our original analyses of these data[5] and in multisite, randomized, controlled trials of fluvoxamine[13] and of sertraline[14]; (2) a YBOCS decrease of at least 25% at posttreatment, used in multisite randomized, controlled trials of paroxetine[15] and of citalopram[16] and in a randomized, controlled trial[17] comparing EX/RP and cognitive therapy (CT); (3) a YBOCS decrease of at least 35% at posttreatment, used in multisite, randomized, controlled trials of fluoxetine[18] and of CMI[19] and in a study comparing EX/RP with and without fluvoxamine[20]; and (4) reliable improvement as determined by the Reliable Change Index (RCI), used in 2 controlled trials comparing EX/RP and CT.[21,22] The RCI was calculated as described by Jacobson and Truax,[9] using the YBOCS test-retest reliability reported by Woody et al.[23]; reliable improvement required an RCI of greater than 1.96.

There are no standard criteria for remission in OCD.[24] In a seminal article addressing this issue in major depressive disorder, Frank et al.[4] proposed an internally consistent, empirically defined conceptual scheme of longitudinal course descriptors including response, remission, and recovery. Full remission was defined as "a relatively brief [measured in days] period during which an improvement of sufficient magnitude is observed that the individual is asymptomatic (i.e., no longer meets syndromal criteria for the disorder and has no more than minimal symptoms)."[4(p853)] Recovery was defined as "a remission that lasts [for a longer period of time]."[4(p853)] Following these guidelines, our dataset could be used to examine remission, but not recovery, given that patients were evaluated at the end of 12 weeks of treatment with measures that assessed symptom severity in the prior week. Therefore, following the guidelines of Frank et al.,[4] we compared 3 possible YBOCS criteria for remission: (1) a YBOCS total score of < 16 at posttreatment, proposed by Pallanti et al.[25] as a definition of remission for OCD; (2) a YBOCS total score of ≤ 12 at posttreatment, used by Eddy et al.[26] as a definition of "minimal OCD" and by van Oppen et al.[21] and McLean et al.[22] as the cutoff score for "nondysfunctional" OCD; and (3) a YBOCS total score of ≤ 7 at posttreatment, used by Cottraux et al.[17] as a definition of "nonclinical" OCD.

Based on these different criteria, the response and remission status of all subjects was determined using all available assessments. The proportion of responders and remitters was then computed for each treatment group. For each response and remission definition, the data were analyzed using methodology similar to that in the original report.[5] Specifically, the proportion of responders or remitters among the 4 treatment groups (EX/RP + CMI, EX/RP, CMI, PBO) was compared using Pearson $\chi^2$ tests; post hoc pairwise comparisons used the Fisher exact test. As recommended,[26] these analyses were conducted separately for all patients who entered treatment (i.e., all who were randomly assigned to treatment and who attended at least 1 treatment session, N = 122) and for all patients who completed the 12-week trial (N = 87). Statistical tests were 2-tailed, with a level of significance of $\alpha = .05$. Because of this study's exploratory nature, corrections for multiple comparisons were not made.

## RESULTS

### Description of the Sample

Of 122 patients who entered treatment, 87 completed all 12 weeks. The demographic and clinical characteristics of the sample have been previously reported[5]; key characteristics are presented in Table 1. In brief, entrants were on average 35 years old, mostly white, chronically ill, and not depressed. There were no significant differences among the 4 treatment groups in age, sex, ethnicity, marital status, age at OCD onset, duration of OCD, or HAM-D scores (all p values ≥ .22). As shown in Table 1, entrants had OCD of moderate severity, with no significant differences between the treatment groups ($F = 0.82$, $df = 3,118$; $p = .49$). The overall dropout rate of those entering treatment was 29%, with no significant differences among treatment conditions ($p > .50$). In both those who entered and those who completed treatment, the mean daily dose of medication during the last week of treatment was significantly lower for patients receiving EX/RP + CMI than for patients receiving either CMI or PBO (all p values < .05).

### Response to Treatment

Different response criteria have been used in prior OCD studies. Four of the most common are presented in Table 2, along with the percentage of responders these different criteria produced when applied to our data set. Descriptively, the different response criteria produced similar observed response rates within each active treatment group in both those who entered and those who completed treatment (range in response rates for entrants: EX/RP + CMI 65%–71%; EX/RP 55%–62%; CMI 36%–44%, PBO 8%–23%; range in response rates for completers: EX/RP + CMI 79%–84%; EX/RP 76%–86%; CMI 41%–52%; PBO 10%–25%). Thus, regardless of the response criteria, over one half of patients who entered EX/RP + CMI or EX/RP treatment and more than one third of patients who entered CMI treatment responded. The observed response rates increased in those who completed active treatment: over three quarters of

**Table 1. Demographic and Clinical Characteristics of the Sample of Patients With Obsessive-Compulsive Disorder (OCD)**

| Variable | EX/RP + CMI (N = 31) | EX/RP (N = 29) | CMI (N = 36) | PBO (N = 26) | All Patients (N =122) |
|---|---|---|---|---|---|
| Age, mean (SD), y | 35.0 (12.2) | 33.8 (8.9) | 35.7 (11.3) | 34.3 (11.4) | 34.8 (10.9) |
| Female, N (%) | 12 (39) | 18 (62) | 18 (50) | 10 (38) | 58 (48) |
| White, N (%) | 24 (77) | 25 (86) | 32 (89) | 22 (85) | 103 (84) |
| Married, N (%) | 7 (23) | 8 (28) | 12 (33) | 4 (15) | 31 (25) |
| Age at OCD onset, mean (SD), y | 17.1 (7.6) | 19.7 (10.6) | 16.4 (8.9) | 19.4 (12.8) | 18.0 (10.0) |
| Duration of OCD, mean (SD), y | 17.3 (12.8) | 14.4 (11.5) | 19.0 (11.1) | 13.8 (10.2) | 16.4 (11.5) |
| Week 0 HAM-D score, mean (SD) | 9.4 (4.7) | 10.5 (6.0) | 10.1 (5.6) | 10.1 (7.0) | 10.0 (5.8) |
| Week 0 YBOCS score, mean (SD) | 25.4 (4.6) | 24.6 (4.8) | 26.3 (4.4) | 25.0 (4.0) | 25.4 (4.4) |
| Dropouts, N (%) | 12 (39) | 8 (28) | 9 (25) | 6 (23) | 35 (29) |
| Daily medication dose in last week, mean (SD), mg | | | | | |
| Entered treatment | 163 (65) | … | 196 (82) | 209 (76)[a] | |
| Completed treatment | 194 (48) | … | 235 (34) | 245 (23)[a] | |

[a]Patients receiving PBO received capsules with appearances identical to those taken by patients receiving CMI and followed the same dosage schedule. The daily medication dose was calculated as though the patients were receiving active medication.
Abbreviations: CMI = clomipramine, EX/RP = exposure and ritual prevention, HAM-D = Hamilton Rating Scale for Depression, PBO = pill placebo, YBOCS = Yale-Brown Obsessive Compulsive Scale.
Symbol: … = not applicable.

EX/RP + CMI and EX/RP completers and about half of CMI completers responded to treatment.

All response criteria produced significant overall differences among the 4 treatment groups in both those who entered and those who completed treatment (all p values < .05, Table 2). Significant differences (p values < .05) between treatment groups in pairwise comparisons are indicated by different superscripts in Table 2. In those who entered treatment, EX/RP + CMI and EX/RP each produced significantly more responders than PBO for all criteria, and CMI was significantly superior to PBO for all criteria but one (i.e., a YBOCS decrease ≤ 25%; p = .11). For all criteria, EX/RP + CMI produced significantly more responders than CMI, but EX/RP did not differ significantly from either EX/RP + CMI (all p values > .42) or CMI (all p values > .14). Pairwise comparisons within treatment completers revealed the same pattern, with 2 exceptions: EX/RP produced significantly more responders than CMI for all response criteria but one (i.e., YBOCS decrease ≤ 25%; p = .07), and CMI was superior to PBO for some response criteria (i.e., much improved or very much improved on the CGI-I and the RCI) but not others (i.e., YBOCS decrease of ≤ 25% [p = .08] or ≤ 35% [p = .11]).

## Remission

Three possible remission criteria are shown in Table 3, along with the percentage of remitters produced when these criteria were applied to our data set. Descriptively, these criteria produced very different observed remission rates within each active treatment group in those who entered and those who completed treatment (range in remission rates for entrants: EX/RP + CMI 35%–61%; EX/RP 24%–55%; CMI 8%–31%; PBO 0%–15%; range in remission rates for completers: EX/RP + CMI 37%–74%; EX/RP 33%–76%; CMI 11%–37%; PBO 0%–20%). The more stringent the remission criteria, the lower the remission rates. The observed remission rates increased for treatment completers in each active treatment group. However, even in treatment completers, few met the most stringent criterion for remission (percentage of completers with YBOCS ≤ 7: EX/RP + CMI 37%; EX/RP 33%; CMI 11%; PBO 0%).

All remission criteria produced significant overall differences among the 4 treatment groups in those who entered and those who completed treatment (all p values < .01, Table 3). Significant differences (p < .05) between treatment groups in pairwise comparisons are indicated by different superscripts in Table 3. In both those who entered and those who completed treatment, EX/RP + CMI and EX/RP did not differ from each other (all p values > .41), and each produced significantly more remitters than PBO for all criteria; on the other hand, CMI was superior to PBO only when remission was defined as a YBOCS ≤ 12, not when remission was defined either as a YBOCS < 16 or as a YBOCS ≤ 7 (all p values > .23). In those who entered treatment, EX/RP + CMI produced significantly more remitters than CMI for all criteria, but EX/RP was superior to CMI when remission was defined as a YBOCS ≤ 12 but not when remission was defined as a YBOCS < 16 (p = .08) or a YBOCS ≤ 7 (p = .10). In those who completed treatment, EX/RP + CMI and EX/RP were each superior to CMI when remission was defined as a YBOCS ≤ 16 or ≤ 12, but there were no significant differences among the 3 active treatment groups when remission was defined as a YBOCS ≤ 7 (EX/RP + CMI vs. EX/RP: p = 1.00; EX/RP vs. CMI: p = .08; EX/RP + CMI vs. CMI: p = .07).

  

**Table 2. Responders Among Patients With Obsessive-Compulsive Disorder Based On Different Response Criteria[a]**

| Response Criteria | EX/RP + CMI | EX/RP | CMI | PBO | $\chi^2$ p Value |
|---|---|---|---|---|---|
| Entered Treatment [N = 122] | [N = 31] | [N = 29] | [N = 36] | [N = 26] | |
| Much or very much improved on the CGI-I, N (%) | 21 (70)$^{A}$* | 18 (62)$^{A,B}$ | 15 (42)$^{B}$ | 2 (8)$^{C}$ | < .01 |
| Reliable improvement based on the RCI, N (%) | 21 (68)$^{A}$ | 16 (55)$^{A,B}$ | 13 (36)$^{B}$ | 2 (8)$^{C}$ | < .01 |
| YBOCS decrease ≥ 35%, N (%) | 20 (65)$^{A}$ | 16 (55)$^{A,B}$ | 13 (36)$^{B}$ | 3 (12)$^{C}$ | < .01 |
| YBOCS decrease ≥ 25%, N (%) | 22 (71)$^{A}$ | 17 (59)$^{A,B}$ | 16 (44)$^{B,C}$ | 6 (23)$^{C}$ | < .05 |
| Completed Treatment [N = 87] | [N = 19] | [N = 21] | [N = 27] | [N = 20] | |
| Much or very much improved on the CGI-I , N (%) | 15 (83)$^{A}$* | 18 (86)$^{A}$ | 13 (48)$^{B}$ | 2 (10)$^{C}$ | < .01 |
| Reliable improvement based on the RCI, N (%) | 15 (79)$^{A}$ | 16 (76)$^{A}$ | 11 (41)$^{B}$ | 2 (10)$^{C}$ | < .01 |
| YBOCS decrease ≥ 35%, N (%) | 15 (79)$^{A}$ | 16 (76)$^{A}$ | 11 (41)$^{B}$ | 3 (15)$^{B}$ | < .01 |
| YBOCS decrease ≥ 25%, N (%) | 16 (84)$^{A}$ | 17 (81)$^{A,B}$ | 14 (52)$^{B,C}$ | 5 (25)$^{C}$ | < .01 |

[a]For each criterion, there were significant differences among the 4 treatment groups in the proportion of responders (i.e., all p values < .05 in the $\chi^2$ tests). Treatment groups that do not share a superscript (A, B, or C) were also significantly different from each other (p < .05) in pairwise comparisons (e.g., for CGI-I, entered treatment: EX/RP + CMI > CMI > PBO; EX/RP > PBO; EX/RP = EX/RP + CMI and CMI).

*The CGI-I rating was missing on 1 EX/RP + CMI subject; therefore, these percentages were calculated on a sample of 30 who entered and 18 who completed the 12-week trial.

Abbreviations: CGI-I = Clinical Global Impressions-Improvement scale, CMI = clomipramine, EX/RP = exposure and ritual prevention, PBO = pill placebo, RCI = Reliable Change Index, YBOCS = Yale-Brown Obsessive Compulsive Scale.

**Table 3. Remitters Among Patients With Obsessive-Compulsive Disorder Based on Different Remission Criteria[a]**

| Remission Criteria | EX/RP + CMI | EX/RP | CMI | PBO | $\chi^2$ p Value |
|---|---|---|---|---|---|
| Entered Treatment [N = 122] | [N = 31] | [N = 29] | [N = 36] | [N = 26] | |
| YBOCS total score < 16, N (%) | 19 (61)$^{A}$ | 16 (55)$^{A,B}$ | 11 (31)$^{B,C}$ | 4 (15)$^{C}$ | < .01 |
| YBOCS total score ≤ 12, N (%) | 18 (58)$^{A}$ | 15 (52)$^{A}$ | 9 (25)$^{B}$ | 0 (0)$^{C}$ | < .01 |
| YBOCS total score ≤ 7, N (%) | 11 (35)$^{A}$ | 7 (24)$^{A,B}$ | 3 (8)$^{B,C}$ | 0 (0)$^{C}$ | < .01 |
| Completed Treatment [N = 87] | [N = 19] | [N = 21] | [N = 27] | [N = 20] | |
| YBOCS total score < 16, N (%) | 14 (74)$^{A}$ | 16 (76)$^{A}$ | 10 (37)$^{B}$ | 4 (20)$^{B}$ | < .01 |
| YBOCS total score ≤ 12, N (%) | 13 (68)$^{A}$ | 15 (71)$^{A}$ | 8 (30)$^{B}$ | 0 (0)$^{C}$ | < .01 |
| YBOCS total score ≤ 7, N (%) | 7 (37)$^{A}$ | 7 (33)$^{A}$ | 3 (11)$^{A,B}$ | 0 (0)$^{B}$ | < .01 |

[a]For each criterion, there were significant differences among the 4 treatment groups in the proportion of remitters (i.e., all p values < .01 in the $\chi^2$ tests). Treatment groups that do not share a superscript (A, B, or C) were also significantly different from each other (p < .05) in pairwise comparisons (e.g., for YBOCS < 16, entered treatment: EX/RP + CMI = EX/RP > PBO; EX/RP + CMI > CMI; EX/RP = CMI; CMI = PBO).

Abbreviations: CMI = clomipramine, EX/RP = exposure and ritual prevention, PBO = pill placebo, YBOCS = Yale-Brown Obsessive Compulsive Scale.

## DISCUSSION

Different response definitions have been used in randomized, controlled trials of patients with OCD. Applying various definitions to our data set, we observed response rates similar to those in previous trials. Of patients who entered treatment, more than half of patients receiving EX/RP + CMI and EX/RP and one third of patients receiving CMI were responders; of patients who completed treatment, more than three quarters of patients receiving EX/RP + CMI and EX/RP and almost one half of patients receiving CMI were responders. These response rates and those observed for patients receiving placebo (range: 8%–25%) are consistent with prior studies that used similar criteria for response.[26] Together, these data confirm that many OCD patients respond to evidence-based treatment.

As hypothesized, the groups receiving EX/RP with or without CMI produced significantly more responders than those receiving PBO. However, whether CMI response differed significantly from PBO response depended on the specific criterion used. In particular, when response required only a modest reduction in symptoms (i.e., YBOCS decrease ≥ 25%), up to one quarter of patients receiving PBO achieved response, and the difference between patients taking CMI and PBO did not reach significance either in patients who entered or in those who completed treatment.

EX/RP + CMI treatment also produced significantly more responders than CMI in both those who entered and those who completed treatment. However, the difference between the EX/RP and CMI groups only reached significance in the completer sample. This may be due to the fact that most patients receiving EX/RP dropped out

(5/8 = 63%) because of trouble doing exposures, an essential procedure for a good EX/RP outcome; in contrast, most patients receiving CMI dropped out due to medication side effects or noncompliance (6/9 = 67%), factors that presumably are independent of CMI's efficacy. As a result, the response rate for EX/RP completers was much higher than for EX/RP entrants, whereas the response rate for CMI completers was only marginally higher than for CMI entrants. We conclude that EX/RP monotherapy can produce substantially more responders than CMI monotherapy, but only when patients complete and adhere to EX/RP treatment. On the other hand, EX/RP + CMI treatment has clear superiority to CMI alone.

Few prior studies have examined remission in OCD. Moreover, there is some confusion as to whether an excellent treatment outcome should be called a remission or a recovery and over how to define these terms in OCD. For example, Pallanti et al.[25] proposed that remission be defined as a YBOCS score < 16 at posttreatment and that recovery be reserved for patients with episodic OCD (and defined as a YBOCS score ≤ 7). Ballenger[27] proposed that remission require a 3-month period of almost no symptoms of OCD (YBOCS score ≤ 8) or of depression (HAM-D ≤ 7), minimal anxiety (Hamilton Rating Scale for Anxiety[28] score ≤ 10), and minimal functional impairment (Sheehan Disability Scale[29] score ≤ 1). Remission has also been defined in other ways.[30,31] Van Oppen et al.[21] and McLean et al.[22] did not mention remission and used their own definition of recovery (i.e., RCI ± 1.96 and YBOCS score ≤ 12).

We followed the guidelines proposed by Frank et al.[4] who conceptualized remission as a relatively brief period (lasting days) when an individual has no more than minimal symptoms. Based on this conceptualization, we examined the effects of various criteria based on the YBOCS and observed quite different remission rates depending on the stringency of the criteria. When remission permitted minimal symptoms after treatment (i.e., YBOCS score ≤ 12), the results were as hypothesized: in both those who entered and who completed treatment, all active treatments produced significantly more remitters than PBO, and EX/RP + CMI and EX/RP were each superior to CMI alone. However, when remission required that patients be essentially asymptomatic (i.e., YBOCS score ≤ 7), neither the differences between CMI and PBO nor those between EX/RP and CMI reached significance; EX/RP + CMI was superior to CMI only in those who entered treatment.

Together, these data lead us to the following conclusions (Table 4): First, we need to establish standard criteria for longitudinal course descriptors like response, remission, and relapse in OCD[32]; these criteria would facilitate comparisons between clinical trials (enabling better treatment guidelines) and foster research on the factors that promote remission and prevent relapse. Our data suggest that a decrease in YBOCS score of 25% may constitute a sensitive but not very specific response definition. We propose that defining remission as a YBOCS score ≤ 12 for at least 1 week best approximates the guidelines promulgated by Frank et al.[4]; a YBOCS score < 16 permits patients to have more than minimal OCD symptoms, whereas a YBOCS score ≤ 7 requires patients to be essentially asymptomatic and is potentially unrealistic.

**Table 4. Summary of Findings**

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|---|
| Standard criteria for response and remission are needed in OCD: |
| A decrease of at least 25% on the Yale-Brown Obsessive Compulsive Scale (YBOCS) is a sensitive but not very specific measure of response |
| A YBOCS total score of ≤ 12 for at least 1 week is a simple way to define remission, following the guidelines for remission proposed by Frank and colleagues[4] |
| Intensive exposure and ritual prevention (with or without concomitant clomipramine) > clomipramine > pill placebo for OCD patients without comorbid depression |
| Serotonin reuptake inhibitors like clomipramine are unlikely to lead to remission (i.e., no more than minimal symptoms) in OCD |

Abbreviation: OCD = obsessive-compulsive disorder.

Second, all active OCD treatments produced more responders than PBO. However, EX/RP + CMI and EX/RP produced many more patients with minimal symptoms (i.e., YBOCS score ≤ 12) than CMI alone. Lower YBOCS scores appear to be positively associated with better quality of life and functioning.[29] Together, these data suggest that OCD patients should have access to EX/RP if the goal of treatment is not just a reduction in symptoms but an excellent outcome.

Third, only about two thirds of patients receiving EX/RP and EX/RP + CMI and one third of patients receiving CMI who completed the 12-week trial achieved our recommended definition of remission (i.e., YBOCS score ≤ 12). Only one third of patients receiving EX/RP and EX/RP + CMI and one tenth of patients receiving CMI completed the 12-week trial with essentially no OCD symptoms (i.e., YBOCS score ≤ 7). Thus, although OCD patients respond to evidence-based treatments, these treatments—even in combination—are insufficient to help many patients achieve an excellent treatment outcome characterized by minimal or no symptoms.

Several features of the original study design merit consideration. First, all patients had OCD as their primary diagnosis, and OCD patients with significant comorbid depression were excluded. Second, session length and visit frequency were different for the EX/RP and CMI conditions, and only the CMI alone condition was double-blind. Third, the sample size afforded adequate (80%) power for 2-sided significance tests with $\alpha = .05$ to detect only relatively large differences in proportions (e.g., ≥ 35%) in pairwise comparisons of the treatment groups. Despite our limited power to detect small differ-

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ences in proportions, we observe that there was the same ordering of treatment groups with respect to efficacy for all response and remission criteria: EX/RP (with or without CMI) > CMI > PBO. Third, the study compared what are arguably the 2 most effective treatments for OCD: intensive EX/RP and CMI. However, in current clinical practice, EX/RP (if available) is likely to be delivered weekly, and selective SRIs are used more than CMI because of their more favorable side effect profile. Based on other work, it is reasonable to assume that weekly EX/RP produces lower remission rates than intensive or twice-weekly EX/RP,[33,34] whereas the selective SRIs produce remission rates similar to CMI.[35,36] Thus, the potential for EX/RP (with or without SRIs) to produce many more remitters than SRIs alone may only be realized when EX/RP is delivered more than once per week. Fourth, these data reflect the best these treatments can achieve in OCD under ideal conditions. In routine clinical practice, response and remission rates are likely to be much lower, given that some OCD patients refuse EX/RP or SRI treatment,[5] and few receive optimal or expert care.[30,37]

Important questions remain. For example, we examined definitions that were based on symptom severity measures alone, because the study did not include measures of quality of life or functioning. Although OCD severity appears to be positively correlated with disability (J.D.H., H.B.S., K. Nissenson, Ph.D., et al., unpublished data), future studies need to explore whether response and remission criteria that include measures of quality of life and functioning produce a similar pattern of results. Likewise, because of the timing of the clinical evaluations, we could only examine remission criteria that persisted for at least 1 week. Future studies need to address the stability of remission over longer periods of time. We have previously reported that EX/RP responders (with or without CMI) maintain their gains longer after treatment discontinuation than responders to CMI alone.[10]

In sum, when EX/RP and SRI treatments are delivered optimally, many patients with primary OCD will respond to EX/RP psychotherapy, SRI pharmacotherapy, or their combination. Up to one third of patients who complete intensive EX/RP (with or without SRIs) can become essentially asymptomatic in only 12 weeks. These findings underscore the importance of developing strategies to help patients enter and complete EX/RP and highlight the potential public health benefit of disseminating SRIs and EX/RP treatment for OCD. However, our findings also indicate that SRIs alone are unlikely to produce remission; even SRIs in combination with intensive EX/RP help only about two thirds of OCD patients achieve minimal symptoms after 12 weeks of treatment. We need to understand better what causes OCD, how our current treatments work, and what moderates and mediates treatment outcome. Armed with this knowledge, we have the potential not only to improve our current treatments but also to develop novel interventions so that more people with OCD can lead productive and quality lives.

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

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