Journal of Consulting and Clinical Psychology
2003, Vol. 71, No. 2, 394–398

0022-006X/03/$12.00 DOI: 10.1037/0022-006X.71.2.394

Exposure and Ritual Prevention for Obsessive–Compulsive Disorder: Effects of Intensive Versus Twice-Weekly Sessions

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Exposure and ritual prevention (ERP) is the most effective treatment for obsessive–compulsive disorder (OCD), yet the intensive treatment schedule often described is not transportable to many settings. In the present study, the authors examined whether a twice-weekly (TW) ERP program reduced the effectiveness of intensive (IT) ERP. Forty OCD patients received 15 sessions of ERP: 20 received daily treatment over 3 weeks and 20 received twice weekly therapy over 8 weeks. Results indicated that both programs were effective. The effect of therapy schedule was moderate, with a trend toward more improvement in the intensive group at posttreatment. No differences were found at follow-up; some evidence of relapse was found with IT but not TW.

Cognitive–behavioral therapy by exposure and ritual prevention (ERP) is the most effective treatment for obsessive–compulsive disorder (OCD; Abramowitz, 1997), yet its widespread use is impeded by practical barriers. Specifically, most treatment studies have described an intensive ERP regimen involving 15 treatment sessions over 3 weeks (e.g., Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000). Although this schedule is well suited for research or specialty clinics, time and financial constraints (for therapists and patients alike) limit its transportability to clinical service settings. Thus, the best OCD treatment is the most difficult to find.

One method of increasing access to ERP is to offer an accommodating visit schedule. This raises the question of whether a less intensive version of ERP attenuates outcome to the point of being clinically impractical. Emmelkamp, van Linden van den Heuvell, Ruphan, and Sanderman (1989) found no difference between massed and spaced ERP sessions, yet the inadequate sample size ($n = 7$ per group) and treatment duration (10 sessions) and lack of therapist-supervised exposure limited conclusions that can be drawn from that study.

Thus, our aim in the present study was to determine whether a less intensive visit schedule (15 twice-weekly sessions over 8 weeks; TW) would meaningfully compromise treatment effectiveness compared with an intensive ERP (15 daily sessions over 3 weeks; IT). In addition to tests of statistical significance, we considered effect sizes and clinical significance data in examining whether TW ERP sessions represent a viable alternative to IT. To enhance the generalizability of our results to patients seen in general service settings, we included OCD patients highly typical of the treatment-seeking population (i.e., with comorbidity).

Method

Participants

Patients in both the IT ($n = 20$) and TW ($n = 20$) ERP conditions were adults (18 years or older) referred to an anxiety clinic at a large university medical center. Inclusion criteria for the study were (a) primary *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994; *DSM–IV*) diagnosis of OCD and (b) Yale–Brown Obsessive Compulsive Scale (Y-BOCS; Goodman, Price, Rasmussen, Mazure, Delgado, et al., 1989; Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989) score of at least 18. The TW group received treatment between September 1998 and August 2000, and the IT group received treatment between 1995 and 2000. Patients in the IT group were selected to match those in the TW group on their initial OCD severity (Y-BOCS score), initial depression severity (Beck Depression Inventory; BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961), presence of comorbid Axis I or Axis II psychopathology, and concomitant serotonergic medication use. Demographic characteristics for the two groups appear in Table 1. Between-group comparisons indicated no differences on any of these variables (all $ps > .05$), confirming successful matching.

Nine patients (45%) in each group met criteria for Axis I or II comorbidity. Comorbid conditions in the IT group were major depression ($n = 3$), generalized anxiety disorder, panic disorder, bipolar disorder, obsessive–compulsive personality disorder ($n = 2$), and schizotypal panic disorder. Comorbidity in the TW group included major depression ($n = 2$), generalized anxiety disorder ($n = 3$), Tourette's syndrome, attention deficit disorder, bipolar disorder, and obsessive–compulsive personality disorder.

Nine patients (45%) in each group were also receiving concomitant pharmacotherapy by serotonin reuptake inhibitor. All had been at a con-

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This research was supported by National Institute of Mental Health Grants F32-MH12101, awarded to Jonathan S. Abramowitz, and R01-MH3163404, awarded to Edna B. Foa. Portions of this work were presented at the 34th Annual Convention of the Association for Advancement of Behavior Therapy in New Orleans, Louisiana, November 2000, and the World Congress of Behavioral and Cognitive Therapies in Vancouver, British Columbia, Canada, July 2001.

We acknowledge the following people for their work at various stages of this research: Donald Bux Jr., Shawn Cahill, Jennifer Filip, Michael J. Kozak, Gordon Street, David Tolin, and Elna Yadin.

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Table 1
Demographic Characteristics of OCD Patients by Treatment Condition

Characteristic	ERP condition	
	Intensive	Twice weekly
n (intent to treat)	20	20
Number of dropouts (%)	4 (20)	4 (20)
Age in years *M* (*SD*)	36.2 (15.6)	38.7 (13.6)
Number of males (%)	12 (60)	11 (55)
Years of education *M* (*SD*)	17.5 (2.1)	17.0 (2.8)
Initial OCD severity (Y-BOCS)	25.75 (3.9)	25.55 (4.5)
Initial depression severity (BDI)	18.65 (8.7)	19.95 (11.4)
Duration of OCD in years *M* (*SD*)	14.5 (11.3)	20.4 (12.8)
No. with previous ERP (%)	5 (25)	6 (30)

Note. OCD = obsessive–compulsive disorder; ERP = exposure and ritual prevention; Y-BOCS = Yale–Brown Obsessive–Compulsive Scale; BDI = Beck Depression Inventory.

sistent dose for at least 3 months and remained so throughout ERP. No patients had simultaneous psychosocial treatment for anxiety or mood disorders.

Procedure

All patients met first with a trained doctoral-level psychologist who administered the Y-BOCS symptom checklist and severity scale as well as a semistructured assessment of current comorbid Axis I and II conditions using *DSM–IV* criteria. On completion, the diagnostician presented the interview data to a second psychologist, who confirmed the diagnoses and then discussed the treatment program with the patient. All patients in the present study were assigned a diagnosis of primary OCD by both interviewers. Written consent was obtained after a discussion of the research procedures.

Following the intake, patients began individual ERP with 1 of 12 doctoral-level therapists. There were only 3 therapists who treated patients in both the IT and TW groups. Therapist training involved didactics, observing treatment as a cotherapist, and conducting individual therapy under close supervision by an ERP expert. In the current study, therapists' experience with ERP ranged from 1 to 16 years. Weekly group supervision meetings were held to review cases and nonlicensed therapists received additional individual supervision on a weekly basis.

All patients received fifteen 2-hr treatment ERP sessions that were based on the manual by Kozak and Foa (1997). For the IT group, sessions were held every weekday for 3 weeks. In the TW group, sessions were conducted twice each week over 8 weeks, with 1 session toward the beginning of each week and 1 toward the end of each week. Patients in the TW group also spoke with their therapist once between sessions by telephone. During these 5–10-min calls the patient reported on progress with homework practice.

Therapy began with two treatment-planning sessions during which information about the patient's obsessional fears and rituals was collected and an exposure hierarchy of anxiety-evoking situations and thoughts was developed. The cognitive–behavioral model of OCD and rationale for ERP procedures were also discussed. Sessions 3–15 included therapist-supervised in vivo and imaginal exposure. Early exposures were to moderately distressing situations with progression toward more anxiety-evoking ones. Exposure homework was also assigned. During exposure, therapists drew attention to patients' mistaken cognitions about the likelihood of catastrophic consequences. Ritual prevention included instructions to refrain from all compulsive behaviors. Self-monitoring was used to enhance awareness of situations that triggered urges to ritualize.

Design and Measures

Figure 1 depicts the study design and assessment points for each group. Evaluators were not otherwise involved in the patient's treatment and had been trained in the use of the outcome measures. All patients who dropped out of the study did so within the first five ERP sessions.

OCD symptoms were assessed using the Y-BOCS. This is a 10-item semistructured clinical interview in which the time, interference, distress, resistance, and degree of control associated with obsessions and compulsions are rated separately from 0 (*no symptoms*) to 4 (*severe symptoms*). Scores on each item are summed to produce a total score ranging from 0 (*no symptoms*) to 40 (*extremely severe*).

Depressive symptoms were assessed with the BDI, a 21-item self-report measure of affective, cognitive, motivational, vegetative, and psychomotor components of depression. Scores of 10 or less are considered normal; scores of 20 or greater suggest the presence of clinical depression.

Results

Group means and standard deviations on the Y-BOCS and BDI for the intent-to-treat sample (all 40 patients) appear in Table 2 (top). Patients who withdrew early were retained in this analysis by substituting the pretreatment score for the missing posttreatment or follow-up score. Results for the completer sample (bottom of Table 2) were calculated using the 32 patients who completed the study. Notably, there were no dropouts in either group between the posttreatment and 3-month follow-up.

Effects of Treatment

Intent-to-treat sample. A repeated measures analysis of variance (ANOVA) of Y-BOCS scores indicated significant effects of

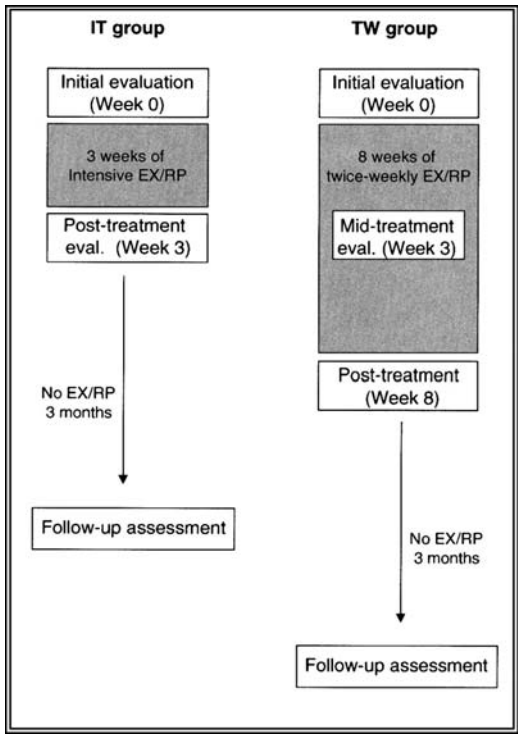

Figure 1. Intensive (IT) versus twice-weekly (TW) exposure and ritual prevention (EX/RP) study design.

Table 2
Means (Standard Deviations) for the Intensive and Twice-Weekly ERP Groups: Total (Intent-to-Treat) and Completer Samples

Measure and condition	Assessment		
	Pretreatment	Posttreatment	Follow-up
Total sample (intent to treat)			
Y-BOCS			
Intensive	25.75 (3.9)	11.80 (6.2)	13.75 (5.4)
Twice weekly	25.55 (4.5)	15.30 (7.1)	14.70 (5.7)
BDI			
Intensive	18.65 (8.7)	9.65 (6.3)	11.30 (10.6)
Twice weekly	19.95 (11.4)	12.80 (10.1)	12.45 (9.3)
Completer sample			
Y-BOCS			
Intensive	25.50 (3.8)	10.38 (4.8)	12.69 (4.2)
Twice weekly	25.63 (4.0)	13.13 (5.2)	14.25 (5.3)
BDI			
Intensive	19.00 (9.0)	8.56 (5.2)	10.31 (10.6)
Twice weekly	20.81 (12.3)	12.19 (10.6)	11.44 (9.7)

Note. ERP = exposure and ritual prevention; Y-BOCS = Yale–Brown Obsessive–Compulsive Scale; BDI = Beck Depression Inventory.

time for both the IT, $F(2, 38) = 75.74$, $p < .01$, and TW groups, $F(2, 38) = 31.37$, $p < .01$. Paired t tests revealed that in both groups, Y-BOCS scores decreased significantly from pre- to posttreatment, and from pretreatment to follow-up (all ps $< .01$). There were no significant differences between posttreatment and follow-up scores for either group (ps $> .05$).

An ANOVA of the BDI scores indicated significant effects of time for both the IT, $F(2, 38) = 22.70$, $p < .01$, and TW groups, $F(2, 38) = 13.62$, $p < .01$. Paired t tests revealed that for both groups, BDI scores declined from pre- to posttreatment and from pretreatment to follow-up (all ps $< .01$). There were no significant differences between posttreatment and follow-up scores for either group (ps $> .05$).

Within-group effect sizes on the Y-BOCS were uniformly large. For the IT group, effect sizes were 2.70 at posttreatment and 2.55 at follow-up. For the TW group, effect sizes were 1.80 at posttreatment and 2.12 at follow-up. Effect sizes were also calculated using BDI mean scores. For the IT group, effect sizes were 1.03 at posttreatment and 0.76 at follow-up. For the TW group, effect sizes were 0.67 at posttreatment and 0.73 at follow-up, corresponding to moderately large treatment effects.

Completer sample. Identical analyses were conducted using only data from the 32 patients who completed treatment. The pattern of ANOVA and post hoc test results was identical to that found in the intent-to-treat analyses, so these statistics are not reported in detail.

Comparison of IT Versus TW ERP

Intent-to-treat sample. Because of matching, the two groups did not differ on the Y-BOCS at pretreatment ($p > .05$). At posttreatment, there was a trend suggesting that the IT group had lower Y-BOCS scores than the TW group, $t(38) = 1.67$, $p < .10$. Follow-up Y-BOCS means were not significantly different, $t(38) = 0.54$, $p = .63$.

Between-group effect sizes on the Y-BOCS at posttreatment and follow-up were 0.53 and 0.17 respectively. These results indicate a medium-sized effect of treatment schedule at posttreatment and small-sized effect at follow-up.

Similar analyses conducted with BDI scores revealed no between-group difference at pretreatment, $t(38) = 0.40$, *ns*, posttreatment, $t(38) = 1.18$, *ns*, or follow-up, $t(38) = 0.37$, *ns*. Posttreatment and follow-up effect sizes were small: 0.32 and 0.12, respectively.

Completer sample. A similar set of analyses was performed using the completer sample. No between-group differences were found at any time point on the Y-BOCS or BDI. Effect sizes were similar to those for the intent-to-treat sample.

Clinically Significant Change

We used the methodology described by Jacobson and Truax (1991) to determine the number of patients in each group (intent-to-treat sample) who achieved (a) end-state functioning within the nonpatient distribution of Y-BOCS scores and (b) reliable change. Steketee, Frost, and Bogert (1996) reported the required nonpatient Y-BOCS norms and test–retest reliability.

In the IT group, 17 patients (85%) at posttreatment and 14 (70%) at follow-up achieved both criteria (recovered status). In the TW group, 11 patients (55%) at posttreatment and 12 (60%) at follow-up were recovered. Chi-square tests indicated that more patients in the IT than in the TW group were recovered at posttreatment, $\chi^2(1, N = 40) = 4.29$, $p < .05$. There was no difference at follow-up, $\chi^2(1, N = 40) = 0.44$, *ns*.

Controlling for Effects of Time

Although the number of ERP sessions was the same in the IT and TW groups, the duration of treatment (3 vs. 8 weeks) was different. To examine the effects of session frequency on OCD symptoms, controlling for time, we compared the group mean Y-BOCS scores at pretreatment and at Week 3 (posttreatment for the IT group, midtreatment for the TW group).

A repeated measures 2 (group: IT, TW) × 2 (time: pretreatment, Week 3) ANOVA revealed a significant main effect of group, $F(1, 38) = 4.53$, $p < .05$, and of time, $F(1, 38) = 155.65$, $p < .01$, modified by a significant Time × Group interaction, $F(1, 38) = 13.51$, $p < .01$. Groupwise comparisons indicated significant improvement in each group ($ps < .001$). Whereas there were no differences at pretreatment, $t(38) = 0.15$, *ns*, after 3 weeks the IT group had significantly lower Y-BOCS scores than did the TW group. Thus, the IT group improved more than did the TW group, suggesting that the number of sessions, rather than simply the passage of time, influenced outcome.

Discussion

One barrier to the widespread use of ERP is that the empirically supported version of this therapy involves an intensive visit schedule that is not readily transportable to most service settings. In the present study, we examined whether the typically excellent response to intensive ERP would be greatly diminished if treatment sessions occurred on a twice-weekly basis. We found that both intensive and twice-weekly ERP were associated with significant short- and long-term reductions in OCD and depressive symptoms. Further, the majority of patients in both conditions evidenced clinically significant improvement. The present sample contained patients with psychiatric comorbidity and histories of treatment failure. Thus, our data support previous findings that the effects of ERP are not limited to highly selected research samples (Franklin et al., 2000) and provide evidence that nonintensive (i.e., twice-weekly) ERP is an effective treatment for OCD when delivered by clinicians trained in this approach.

The results of our between-groups analyses suggest that the intensive ERP schedule was superior to the twice-weekly schedule in the short term, but not at follow-up. Three months following therapy, there were no between-group differences in OCD symptom severity or in the number of patients who achieved clinically significant improvement. Thus, our findings indicate that decreasing the intensity of ERP to a more accommodating schedule still provides an effective intervention for treatment-seeking OCD patients.

It is interesting to note that the lack of between-group differences at follow-up was due to some deterioration of treatment gains in the IT group rather than to continued improvement in the TW group. This finding is consistent with research on the short- and long-term effects of massed versus spaced learning and retrieval trials on memory. Schmidt and Bjork (1992) suggested that longer and more varied intervals between practice trials impede learning during acquisition but enhance long-term retention because they provide increased opportunities to practice retrieval in varied contexts. Conversely, massed practice, which maximizes immediate performance, results in deteriorating performance when such conditions are removed.

Although the exact mechanism of ERP is unknown, Foa and Kozak (1986) proposed that these procedures modify pathological anxiety by providing opportunities for learning corrective information about the true dangerousness of feared stimuli. Thus, because TW provided more diverse opportunities than IT to consolidate what was learned during in-session exposures, this schedule may better foster long-term maintenance of treatment gains. In contrast, the IT program may enhance immediate outcome, but result in a long-term return of fear (Rachman, 1979). Similar effects have been observed with massed versus spaced exposure therapy for other anxiety problems (e.g., Rowe & Craske, 1998).

When we controlled for the effects of time, IT patients showed more improvement on the Y-BOCS compared with TW patients over 3 weeks. This suggests that the number of therapist contacts, rather than the passage of time, was the active ingredient. This finding is not surprising given that the passage of time per se has rarely been associated with reduction in OCD symptoms (e.g., Fals-Stewart, Marks, & Schafer, 1993). Our results indicate that although 15 sessions over 3 or 8 weeks yielded similar long-term outcome, 7 sessions delivered over 3 weeks yielded inferior outcome compared with 15 sessions over 3 weeks.

When should OCD patients receive IT versus less intensive ERP? With little empirical data to guide this decision, several clinical factors should influence recommendations regarding session frequency. Daily sessions permit close supervision of exposure and rapid identification of problems with compliance. This is important because noncompliance can prevent extinction of obsessional anxiety and impede outcome. Thus intensive ERP is recommended when patients have high emotional reactivity, poor insight, or difficulty comprehending the rationale for these treatment procedures. Missed sessions, excessive bargaining over exposure instructions, difficulty refraining from ritualizing, and involvement of family members in avoidance and rituals are often signs that an intensive regimen should be considered. Future research should include empirical studies on these predictors of treatment response.

Our generally favorable results regarding the TW schedule constitute an essential step in promoting the dissemination of ERP for OCD. It could be argued that our sample size was insufficient to detect small differences between IT and TW. However, given that our aim was to examine whether a modification in visit schedule would compromise outcome to the point that TW is not clinically warranted, our interest was in detecting a *large* effect, rather than *any* effect. Our sample size affords the detection of a clinically significant (6-point) reduction on the Y-BOCS at a power of .89.

This study has several limitations that should be considered. First, there was no control group or random assignment. Additionally, the possibility of a time confound exists because some patients in the IT group were treated prior to the TW group. Another limitation was that clinical diagnoses were made by means of a semistructured, rather than fully structured, interview; reliability data on the Y-BOCS were also not available from the current sample. Although patients were typical of general clinic settings, therapists were trained and supervised by experts on ERP and thus were not representative. Treatment fidelity data were also not gathered; thus adherence to the treatment manual was not assessed. Finally our 3-month follow-up period may not have been a sufficient interval in which to assess long-term effects of ERP. These caveats notwithstanding, our results are encouraging and suggest that a larger scale randomized controlled trial examining the effects of ERP visit schedule may now be warranted.

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Received July 10, 2001
Revision received October 1, 2001
Accepted February 18, 2002 ■