

Cognitive–Behavioral Treatment of Obsessive Thoughts: A Controlled Study

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Twenty-nine patients with obsessive-compulsive disorder as diagnosed in accordance with the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised; American Psychiatric Association, 1987) who did not have overt compulsive rituals were randomly assigned to treatment and waiting-list conditions. Patients in the treatment condition received cognitive–behavioral therapy consisting of a detailed explanation of the occurrence and maintenance of obsessive thoughts, exposure to obsessive thoughts, response prevention of all neutralizing strategies, cognitive restructuring, and relapse prevention. Compared with waiting-list patients, treated patients improved significantly on measures of severity of obsessions, current functioning, self-report obsessive-compulsive symptoms, and anxiety. When waiting-list patients were subsequently treated, the combined group improved on all outcome measures. Treatment gains were maintained at 6-month follow-up. Results indicate that cognitive–behavioral therapy is effective in the treatment of patients with obsessive thoughts, a group that has often been considered resistant to treatment.

Exposure and response prevention typically produces improvement in about 90% of patients with overt compulsive rituals, but there is no established treatment for patients who have no overt compulsive rituals (Riggs & Foa, 1993). These patients, variously described as ruminators, pure obsessionals, and so forth, were once thought to be rare. Several well-established treatment programs in Europe and the United States report a substantial proportion of patients who do not report overt compulsions ranging from 17% to 44% (e.g., Baer & Minichiello, 1990; Hoogduin, de Haan, Schaap, & Arts, 1987; Kirk, 1983; Welner, Reich, Robins, Fishman, & Van Doren, 1976). Furthermore, cross-national epidemiological studies have established that the proportion of cases of obsessive-compulsive disorder (OCD) in the community reporting obsessions only may be much higher, even up to 50%–60% (Weissman et al., 1994).

Thought stopping was the treatment of choice for obsessive thoughts during the late 1960s and 1970s, although there was no compelling evidence that it was an effective treatment (see Beech & Vaughn, 1978; Foa, Steketee, & Ozarow, 1985). Rachman (1971, 1976; see also Rachman & de Silva, 1978) laid down a solid basis for understanding and developing exposure-

based treatments for obsessive thoughts. There was little translation of his pioneering work into widely used clinical techniques. However, one case series deserves special mention, as it is the largest published series to date. Hoogduin et al. (1987) reported on outpatient treatment of 26 patients with obsessions alone. Treatment consisted of self-observation and self-monitoring, exposure (in vivo and in imagination), and response prevention (distraction with an incompatible action and self-punishment if cognitive rituals were carried out). On the basis of greater than 30% improvement in self-monitored obsessions as treatment response, 73% responded and 61.5% remained improved at 12- to 36-month follow-ups. This report, although presenting a number of methodological weaknesses, does provide encouraging support for the efficacy of cognitive–behavioral treatment of obsessions.

An important turning point in the treatment of obsessional thoughts was Salkovskis's (1985) theoretical analysis of obsessional thoughts and a later report describing treatment procedures (Salkovskis & Westbrook, 1989). His work has led to a number of applications of the original package (e.g., Ladouceur, Freeston, Gagnon, Thibodeau, & Dumont, 1993, 1995; Martin & Tarrier, 1992; O'Kearney, 1993). The original cases reported by Salkovskis and the later applications consistently report positive results but are either case reports or experimental single-case designs. The present study is a controlled trial of a cognitive–behavioral package for obsessional thoughts comparing exposure and response prevention combined with cognitive restructuring to a waiting-list control group.

The package is based on Salkovskis's (1985) model, which identifies two key cognitive phenomena during obsessive episodes. First, an obsessive thought about an unacceptable action or event is appraised by the patient as indicating responsibility

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for danger or harm to oneself or others. Negative affective disturbance arises from an exaggerated and erroneous sense of responsibility. To reduce the perception of responsibility and the associated anxiety, the individual tries to neutralize the obsession by different responses or strategies. The neutralizing strategies may be cognitive rituals when they are quite stereotyped or constant, such as forming a counterimage (the person dead—the person alive), forming the original unwanted sexual image five times, using a counting sequence, or using a ritualized internal dialogue sequence to convince oneself that the thought is not true. Other less structured neutralizing strategies may also be used such as distraction, rational self-talk, replacing the negative thought by any positive thought, cognitively checking, “rerunning the film,” and so forth, that are not easily described as cognitive rituals (Freeston & Ladouceur, 1996). Finally, reassurance seeking may also be used to decrease responsibility and associated anxiety. Whether ritualized or not, the neutralizing strategies are all inefficient because they preclude prolonged exposure, preventing habituation from taking place. To implement cognitive exposure and response prevention, Salkovskis suggested the use of a looped audiotape on which the thought is first recorded by the patient and later played back continuously during prolonged exposure sessions (Salkovskis, 1985; Salkovskis & Westbrook, 1989). The taped text represents the anxiety-provoking thought, image, or impulse, which is then kept in mind without neutralization or avoidance responses.

Although exposure and response prevention is the core of the treatment package, the theoretical models underlying the treatment postulate that appraisal of the thought has a key role in the maintenance of the disorder and should thus be addressed directly. On the basis of our experience during pilot studies (e.g., Ladouceur et al., 1993, 1995), it became clear that, although responsibility was indeed often present, other types of appraisal were also involved in the perception of threat. Thus, the following were identified as legitimate targets for cognitive intervention: (a) overestimating the importance of the thoughts and its derivatives such as fusion of thought and action and magical thinking (Freeston, Ladouceur, Gagnon, & Thibodeau, 1993; McFall & Wollersheim, 1979; Salkovskis, 1985); (b) exaggerated responsibility (McFall & Wollersheim, 1979; Salkovskis, 1985; Salkovskis & Westbrook, 1989); (c) perfectionistic control over thoughts and actions and the closely related need for certainty (Ladouceur et al., 1995; McFall & Wollersheim, 1979; Rachman & Hodgson, 1980; Rasmussen & Eisen, 1991); and (d) consequences related to the thought's content involving overestimation of the probability and the severity of negative events (Ladouceur et al., 1993; Salkovskis & Westbrook, 1987; Steketee, 1993; van Oppen & Arntz, 1994; Warren & Zgourides, 1991).

Given that there is no clearly established treatment for patients with obsessive thoughts without overt compulsions, and given the generally refractory nature of this type of complaint, the goal of this study was to compare the treatment package with a waiting-list control group. It was hypothesized that, after treatment, the treated group would show significant improvement compared with the waiting-list control group. The waiting-list control group would then be treated with the same treatment package to increase the data available for analysis of clinically significant change and maintenance of gains.

Method

Participants

One hundred ninety-nine people contacted our treatment program from November 1991 through to March 1993. After telephone screening by graduate students for possible OCD, 97 patients were interviewed. Twelve patients did not receive any anxiety disorder diagnosis (12.5%). Eleven (11.8%) were diagnosed as having anxiety disorders other than obsessive-compulsive disorder (OCD). Seventy-three had obsessions, but 21 (21.9%) reported dominant compulsions. There were 52 with dominant obsessions (53.6%) who represented the target population. However, 8 were below entry-level severity criteria (8.3%), and another 8 (8.3%) had comorbid conditions leading to exclusion (1 patient was suicidal, 2 had antisocial personality disorder, 1 had an organic condition, 1 patient suffered from generalized anxiety disorder (GAD) and schizotypal personality disorder, and 1 patient had significant GAD and simple phobia). Thus, 36 patients met inclusion criteria. Twenty-nine completed pretreatment assessment¹, which consisted of four sessions.

This study addresses the 29 patients who were randomly assigned to the treatment group ($n = 15$) or to the control group ($n = 14$) after completing pretreatment evaluation. All were French-speaking Caucasians. There were 16 men and 13 women; 58.6% were married, 17.2% were divorced, and 24.2% were single. The average age was 35.8 years (range, 22 to 53). Patients had an average of 14.4 years of education (range, 9 to 19). The mean duration of the illness was 9.4 years (range, 1 to 39). The majority (83%) had previously consulted for obsessional problems. In fact, 65% had already consulted three or more different resources. Five patients in each group were taking medication at assessment, 4 (14%) were taking antidepressants (2 were taking clomipramine, 1 fluvoxamine, and 1 fluoxetine), 4 (14%) had been prescribed anxiolytics, and 2 (7%) were taking both antidepressants (both clomipramine) and anxiolytics. Patients taking medication did not differ significantly on any sociodemographic, clinical, or pretreatment, posttreatment, or follow-up variables.

Pretreatment scores indicated that all patients had clinically significant OCD symptoms and a mean Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989) total score of 23.5 (range, 11 to 35), with 93% scoring 17 or more. To confirm that the patients had few or no overt compulsions, we administered the Y-BOCS Compulsion subscale once for covert neutralization and once for all neutralizing and activities (i.e., covert and overt, including any overt rituals). The covert neutralization score was expressed as a proportion of all neutralization and varied from 76% to 100%, with a mean of 97%.

Fifty-nine percent of the patients were referred by professionals, and 41% contacted our treatment program directly. The only significant differences between referred and direct entrants into the program ($p <$

¹ The only differences ($p < .05$) between those who completed pretreatment assessment and those who did not was that patients who did not complete evaluation first consulted at a later age (38.8 years vs. 27.6 years; $Z = 2.15$, $p < .05$), had consulted fewer professionals (1.5 vs. 3.3; $Z = 2.48$, $p < .05$), and consulted our treatment program sooner after their original consultation (3.0 years vs. 8.0 years; $Z = 2.14$, $p < .05$). There was no difference on the current severity of obsessional symptoms. Note that for all comparisons of treatment refusers versus acceptors, medication users versus nonusers, referred patients versus direct-entry patients, treatment versus control patients, and so forth, all tests were conducted at $p < .05$, despite inflated Type I error. Using multivariate analyses or Bonferroni corrections in these situations increases the possibility of Type II error, which may have serious consequences if a potential confounding variable is overlooked. We believe that a Type II error is potentially more serious in these situations.

.05) were that direct-entry patients were less educated (13.0 vs. 15.5 years), $t(27) = 2.24, p < .05$, and fewer of them were receiving medication at the time of entry (8% vs. 53%, Fisher's exact $p = .019$). Duration of the illness, onset, severity of current symptoms, history of previous consultation, treatment dropout, age, sex, and education, were similar in both subgroups.

Patient assignment. Patients were randomly assigned to therapists in pairs and were randomly assigned to groups once pretreatment assessment was completed. Patients who withdrew before treatment or who abandoned treatment were replaced by the next available patient. In this way, all therapists assessed and treated equal numbers of treatment and control-group patients. Any reactive effects of the screening and assessment procedures would be distributed across groups. Patients ($n = 9$) who withdrew before treatment started were eliminated from the analyses.

Outcome measures. Two clinician ratings and three self-report measures made up the primary outcome measures.

The Y-BOCS is a 10-item scale that rates obsessions and compulsions each on five items on a scale ranging from 0 to 4, for a total score that varies according to item from 0 to 40. The English version (Goodman, Price, Rasmussen, Mazure, Delgado, et al., 1989; Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989; Woody, Steketee, & Chambless, 1995) has established reliability and validity, and the French version (Mollard, Cottraux, & Bouvard, 1989) has also proven convergent, discriminant, and criterion-related validity (Bouvard et al., 1992). Interrater reliability in this sample on 40% of ratings was adequate ($r_s = .90$). The rater was aware of treatment status.

The Current Functioning Assessment (CFA; Foa, Steketee, Grayson, Turner, & Latimer, 1984) assessed interference in seven life areas (professional, studies, social, family, couple, leisure, and daily chores) over the previous 2 weeks on a 9-point scale. There were five descriptive anchor points with operational definitions of the level of interference with examples from each life area. Ratings varied from *no difficulty* (1) to *severe difficulties* (9). Two scores were considered, the mean score across all applicable life areas and the interference in the most severely affected life area (maximum interference). Interrater reliability checks on 40% of the ratings indicated Spearman correlations of .94 for the maximum and .98 for mean ratings. Spearman correlations between maximum and mean ratings were .75 at baseline assessment, .85 after treatment, and .98 at follow-up (all coefficients significant, $p < .0001$). The maximum rating was retained.

The Padua Inventory (PI; Sanavio, 1988) is a comprehensive 60-item self-report inventory of OCD symptomatology with four subscales: Control, Contamination, Checking, and Impulses and Worries about Loss of Control. The French version has excellent reliability and established convergent and factorial validity (Freeston, Ladouceur, Letarte, Rhéaume, Gagnon, & Thibodeau, 1994).

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988; see also Freeston, Ladouceur, Thibodeau, Gagnon, & Rhéaume, 1994) is a 21-item anxiety symptom checklist that covers core anxiety symptoms commonly experienced by clinically anxious patients across anxiety disorders from the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised; *DSM-III-R*; American Psychiatric Association, 1987). Patients rate symptom intensity for the previous week on a scale ranging from 0 to 3. It has excellent psychometric properties (Beck et al., 1988; Freeston, Ladouceur, Thibodeau, et al., 1994).

The *Beck Depression Inventory* (BDI; Beck, Rush, Shaw, & Emery, 1979; see also Bourque & Beaudette, 1982) is a 21-item measure of depressive symptoms with well-established psychometric properties (see Beck, Steer, & Garbin, 1988).

Procedure

Selection criteria. All patients were interviewed by one of four experienced clinicians (2 psychiatrists, Fabien Gagnon and Nicole Thibo-

deau, and 2 psychologists, Robert Ladouceur and Mark H. Freeston), who used a semistructured interview based on the Structured Clinical Interview for the *DSM-III-R* (SCID; Spitzer, Williams, & Gibbons, 1987). This interview was supplemented by two clinician rating scales for obsessions and overt compulsions (Marks, Stern, Mawson, Cobb, & McDonald, 1980; see also Cottraux, Bouvard, & Légeron, 1985). The interview was recorded, and a second clinician listened to the cassette and confirmed the diagnostic and inclusion criteria. In cases of disagreement, the final decision was made by the four clinicians together. The inclusion criteria were as follows:

(a) The patient currently met *DSM-III-R* diagnostic criteria for OCD (American Psychiatric Association, 1987);

(b) the patient reported using cognitive neutralizing activities;

(c) the patient had no overt compulsions or, if they were present, overt compulsions were not functionally related to the target obsession and much less severe than the obsession (based on subjective ratings by the patient and scores on the target obsessions and compulsions);

(d) a mood or another anxiety disorder was not grounds for exclusion if it was considered of secondary importance by the clinician and the patient (e.g., depressive episode after onset or worsening of obsessions, or generalized anxiety or social phobia that otherwise would not have led the patient to consult);

(e) the patient did not meet diagnostic criteria for any current psychoactive substance abuse disorder, any form of schizophrenia, delusional disorder or other psychotic disorder, any organic mental disorder, or any form of paraphilia or impulse control disorder.

Patients receiving medication were considered if dosage was stable for at least 12 weeks or was being reduced at pretreatment assessment. Patients were accepted if they still met OCD severity criteria during assessment (i.e., marked distress, time consuming, or significant interference).

Treatment expectancy and credibility. We assessed treatment expectancy and credibility after the model had been explained (i.e., after the second treatment session) and again after the final treatment session. A seven-item scale was adapted from Borkovec and Nau (1972). Six dimensions were assessed on a scale ranging from 1 (*very weak*) to 5 (*very strong*): treatment logic, expected results, confidence in recommending treatment to others, interest in applying strategies, therapist warmth-understanding, and therapist attention. The internal consistency for the six-item total score was .86. The seventh item, expectations about residual symptoms, was assessed on a 9-point scale ranging from *no obsessions* (1) to *more than 50 a day* (9).

Therapists

There were four therapists, all graduate students trained in cognitive behavior therapy techniques. One (Mark H. Freeston) had extensive experience with the treatment methods and shared responsibility for training and supervision. The other three therapists all met provincial licensing requirements. Therapists received five briefing sessions, a treatment manual² explaining the treatment model, and detailed instructions for conducting exposure and response prevention. Additional documentation was provided on therapist attitudes and cognitive restructuring techniques (e.g., Beck & Emery, 1985). There were weekly supervision sessions with Robert Ladouceur, a psychologist with 20 years of experience in cognitive-behavioral therapy, and monthly meetings with two psychiatrists (Fabien Gagnon and Nicole Thibodeau).

Therapy Conditions

The waiting-list patients were informed that treatment would begin 16 weeks after original assessment was completed and that they would

² An updated English version based on the treatment manual is available from Mark H. Freeston.

be telephoned once a month. Clinicians met 2 patients individually on one occasion each to fully investigate their current state and to provide support. No specific intervention was made for any aspect of the obsessional disorder. The average length of the waiting-list was 18.7 weeks.

Treatment was based on 1.5-hr sessions twice weekly for the first two thirds of therapy. Treatment was terminated on the basis of sufficient clinical improvement or a maximum treatment length that was set at 40 sessions. Sufficient clinical improvement was decided on the basis of patient self-monitoring and the patient's expressed wish. The decision was discussed in weekly supervision, and then relapse prevention was introduced before terminating treatment. Follow-up sessions were planned at 1 month, 2 months, and 3 months posttreatment, with follow-up assessment and booster sessions at 6 months. Patients who completed treatment received an average of 25.7 sessions of treatment (range, 17–43) over 19.2 weeks (range, 9–25), with 3.3 follow-up sessions. Patients received an average of 40.5 hr of treatment.

Treatment components. The following summarizes the treatment components.

1. A detailed cognitive account of obsessions was provided that identified the following components: (a) triggered or spontaneous obsessive thoughts, (b) inadequate appraisal of the appraisals, (c) anxiety as a reaction to the appraisal, (d) neutralization to decrease anxiety or change appraisals, leading to (e) paradoxical return of the thought. Typically two sessions were spent on the model, which was adapted in terms of the patient's own target thoughts, appraisals, and neutralizing strategies.

2. A minimum of two sessions were devoted to explaining the rationale for exposure and response prevention, preparing a recording for tape-loop exposure, and practicing exposure under therapist supervision. Once a successful exposure session had been achieved (i.e., anxiety increase followed by anxiety decrease and successful response prevention), daily exposure with the tape loop was given as homework.

3. Subsequent exposure was planned with the therapist and involved hierarchies of thoughts where several target thoughts were present or hierarchies of situations if a target thought had different threat values in different situations. All patients initially received tape-loop exposure training. Some continued with tape-loop exposure for extensive periods of time. Others switched to triggering target thoughts through in vivo exposure to specific situations associated with the thought. Most used a combination of both.

4. Cognitive restructuring was introduced as necessary and targeted four main types of dysfunctional appraisal: (a) the overimportance of thoughts and magical thinking, (b) exaggerated responsibility for negative consequences such as harm to others, (c) perfectionistic expectations for control and uncertainty, and (d) inflated estimates of probability and severity of consequences associated with feared events. Cognitive restructuring was used in an individualized way, given the heterogeneity of the target obsessions in the sample. In fact, aggressive, sexual, somatic, neutral, contamination, and religious obsessions, as well as doubting about past actions, were all reported by patients. In some cases, restructuring was used before exposure where the patient would otherwise have refused. In other cases, it was used in parallel to exposure and especially in the later treatment sessions. All patients received interventions aimed at least two of the targets described above, some received all four. Standard techniques were used such as Socratic questioning, identification of automatic thoughts, behavioral experiments, and so forth (see Beck & Emery, 1985). An overview of cognitive restructuring for these specific targets has been published elsewhere (Freeston, Rhéaume, & Ladouceur, 1996).

5. Relapse prevention consisted of fixing reasonable expectations about residual symptoms and their fluctuations, identifying individual vulnerability factors, and planning strategies to adopt when symptom levels rose. All patients received at least one session explicitly addressing these points. Follow-up sessions typically continued this work by exam-

ining how patients were dealing with residual symptoms and fine-tuning relapse prevention procedures.

The program was standardized in the sense that each patient (a) received a standard cognitive account of obsessions, (b) was systematically trained in exposure and response prevention and practiced exposure to each thought in the hierarchy (or to the thought in each situation in the hierarchy), (c) received cognitive restructuring, and (d) was instructed in relapse prevention. It was individualized in the sense that the type of exposure (tape loop, in vivo, etc.), the targets for response prevention, and cognitive correction varied according to the individual characteristics of each patient. Therapists were explicitly instructed not to provide any response prevention instruction for overt compulsions such as checking, washing, ordering, and so forth.

Treatment integrity. Therapists completed a checklist of interventions (including interventions not specified or prohibited in the treatment protocol) at the end of each session. According to therapist records, all patients received the major treatment components as listed above, including some cognitive restructuring. All sessions were recorded, and 8% were checked at random by an independent therapist with previous experience with the treatment package who completed the checklist for each session. All major components listed as present were found. No interventions targeting overt compulsions were noted.

Results

Preliminary Analyses

We used a series of univariate analyses of variance (or Fisher's exact tests) to compare the treatment and waiting-list groups on all sociodemographic, clinical, or outcome variables. There were no differences on any other sociodemographic, clinical, or outcome variables. Consequently, a multivariate repeated measures analysis of variance was used to study treatment effects. Three patients dropped out of the treatment group during the first half of therapy ($M = 4$ weeks; range, 2 to 5 weeks). Their endpoint scores were retained in the analyses; partial data were available for 1 patient, and pretreatment scores were used for the other two.

Posttreatment Improvement

Treatment versus waiting list. A two-way multivariate analysis of variance (Group \times Time) on primary outcome measures revealed a significant Group \times Time interaction, $F(5, 23) = 7.43, p < .001$, and a significant time effect, $F(5, 23) = 5.34, p < .01$. Univariate analyses of variance with a modified Bonferroni adjustment (Simes, 1986) indicated significant interactions for the Y-BOCS, $F(1, 27) = 12.01, p < .05^3$; CFA, $F(1, 27) = 6.25, p < .05$; PI, $F(1, 27) = 6.13, p < .05$; and BAI, $F(1, 27) = 13.47, p < .05$, but not for the BDI. Note that the time effects were significant for all variables. Simple main effects tested differences between the two groups after treatment and showed that the posttest scores were significantly lower in the treatment group on the Y-BOCS, $F(1, 27) = 14.5, p < .05$; CFA, $F(1, 27) = 5.15, p < .05$; PI, $F(1, 27) = 5.62, p < .05$;

³The overall significance level for the group of comparisons is reported rather than the Bonferroni adjusted level, which varies for each comparison. The actual significance level exceeded the criterion for each individual test, often by a great deal.

and BAI, $F(1, 27) = 7.08, p < .05$ (see Table 1). Furthermore, there were highly significant decreases ($p < .0001$) on all variables in the treatment group (including the BDI), but none of the pre- versus postwaiting-list contrasts were significant in the control group.

Total (intention-to-treat) sample. All 14 patients in the control group were offered the same treatment once the waiting-list assessment was completed. The data immediately before treatment (i.e., the postwaiting-list assessment) were used for pretreatment scores. One patient in the waiting-list group did not start treatment and was removed from the analyses, but 3 patients who dropped out of the waiting-list group during treatment were retained ($M = 6.7$ weeks; range, 3 to 10 weeks). The analyses presented below are based on all 28 patients who started treatment. Partial data were available for 3 of the 6 patients who dropped out; pretest scores were used for the others. The data were once again analyzed in a Group \times Time repeated measures multivariate analysis of variance design. No significant multivariate or univariate group or interaction effects were detected, so the analyses reported below refer to a one-way repeated measures analyses of variance.

There was a significant multivariate time effect, $F(10, 100) = 10.20, p < .0001$. Univariate analysis of variance (Bonferroni corrected) showed highly significant decreases on all measures: Y-BOCS, $F(2, 54) = 84.51, p < .05$; CFA, $F(2, 54) = 28.34, p < .05$; PI, $F(2, 54) = 54.14, p < .05$; BAI, $F(2, 54) = 24.31, p < .05$; and BDI, $F(2, 54) = 11.47, p < .05$. The means and standard deviations for all patients are presented in Table 2. All pretreatment versus posttest and follow-up contrasts were significant (Bonferroni corrected) but no posttreatment versus follow-up contrast was significant ($F < 1$). This indicates that scores were significantly lower on all measures at

Table 1
Means and Standard Deviations on Outcome Variables at Pre- and Postassessment for Treatment ($n = 15$) and Waiting-List ($n = 14$) Groups

Variable and group	Pre		Post	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Y-BOCS				
Treatment	25.1	5.0	12.2	9.6
Wait-list	21.2	6.0	22.0	6.0
CFA				
Treatment	6.5	1.7	4.7	2.5
Wait-list	5.9	1.9	5.7	1.6
PI				
Treatment	71.5	31.4	54.7	32.9
Wait-list	87.1	43.4	83.9	35.6
BAI				
Treatment	22.5	7.3	12.8	7.1
Wait-list	19.7	9.9	21.6	12.1
BDI				
Treatment	22.6	8.2	15.8	14.3
Wait-list	18.7	8.2	15.1	8.4

Note. Pre = preassessment; Post = postassessment; Y-BOCS = Yale-Brown Obsessive-Compulsive Scale; CFA = current functioning assessment; PI = Padua Inventory; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory.

Table 2
Means and Standard Deviations on Outcome Variables at Pre- and Postassessment and Follow-Up Assessments for Total (Intention-to-Treat) Sample and Completers

Variable	Pre		Post		6 months	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Total sample (intention to treat, $n = 28$)						
Y-BOCS	23.5	5.7	9.8	8.2	10.8	9.1
CFA	6.1	1.7	3.8	2.3	3.4	2.6
PI	74.7	30.4	52.5	33.1	52.2	36.2
BAI	22.2	9.9	14.2	10.8	13.2	10.8
BDI	18.9	9.2	12.4	12.5	11.9	11.1
Completers ($n = 22$)						
Y-BOCS	23.0	5.7	7.2	5.2	8.1	7.2
CFA	5.7	1.7	3.2	1.8	2.6	2.0
PI	73.7	30.4	45.4	30.0	45.1	33.4
BAI	20.5	8.6	10.3	6.1	9.1	5.0
BDI	17.0	8.8	8.7	10.9	8.2	8.3

Note. Pre = preassessment; Post = postassessment; Y-BOCS = Yale-Brown Obsessive-Compulsive Scale; CFA = current functioning assessment; PI = Padua Inventory; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory.

follow-up than at pretreatment, but there were no significant changes between posttest and 6-month follow-up.

Completers. Identical analyses were conducted for completers. The pattern of results was identical and so are not reported in detail (the F values were greater than for the total sample analyses). The means are presented in Table 2.

Clinically Significant Change

As indicated above, treatment gains were statistically highly significant even when dropouts were retained in the analyses. However, it is also important to show that treatment gains were clinically significant. We conducted endstate functioning and reliable change analyses according to methods specified by Jacobson and Truax (1991) for both the total sample and completers. The cut score for one variable, CFA, was defined arbitrarily as 3 (*slight interference*). For the other four variables, we determined cut scores between functional and clinical distributions using local norms and the formula provided by Jacobson and Truax (1991). Clinically significant change was defined as both endstate functioning within the functional distribution and reliable change (see Table 3).

At posttest, 67% of the total sample showed clinically significant change on the Y-BOCS, dropping to 53% at follow-up. Among completers, the corresponding figures were 77% and 59%, respectively. Clinically significant change was lower for the other variables. Examination of Table 3 shows that high proportions were in within the functional distribution at both posttest and follow-up but that the proportion showing reliable change is low. For CFA, low reliability of this type of measure means a larger reliable change is required (Taylor, 1995). For the other three, the indexes are probably low because of floor effects. Patient-by-patient analyses showed that although pa-

Table 3
Frequency (and %) of Endstate Within the Functional Distribution, Client Reliable Change, and Clinical Significance^a at Posttest and 6-Month Follow-Up

Variable	Functional distribution	RC > 1.96	Clinical significance
Total sample (Intention to treat, <i>n</i> = 28)			
Posttest			
Y-BOCS	23 (82)	20 (71)	19 (67)
CFA	15 (53)	7 (25)	6 (21)
PI	17 (61)	9 (32)	8 (29)
BAI	16 (57)	10 (35)	9 (32)
BDI	18 (64)	9 (32)	9 (32)
6-Month follow-up			
Y-BOCS	22 (79)	16 (57)	15 (53)
CFA	19 (68)	7 (25)	7 (25)
PI	17 (61)	9 (32)	8 (29)
BAI	19 (68)	11 (39)	11 (39)
BDI	17 (61)	11 (39)	11 (39)
Completers (<i>n</i> = 22)			
Posttest			
Y-BOCS	21 (95)	18 (82)	17 (77)
CFA	14 (63)	6 (27)	5 (23)
PI	15 (68)	9 (41)	8 (36)
BAI	16 (72)	10 (45)	9 (41)
BDI	18 (81)	9 (41)	9 (41)
6-Month follow-up			
Y-BOCS	20 (91)	14 (63)	13 (59)
CFA	16 (73)	12 (55)	7 (32)
PI	15 (68)	9 (41)	8 (36)
BAI	19 (86)	11 (50)	11 (50)
BDI	17 (77)	11 (50)	11 (50)

Note. RC = reliable change; Y-BOCS = Yale-Brown Obsessive-Compulsive Scale; CFA = current functioning assessment; PI = Padua Inventory; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory.
^a Endstate within functional distribution and reliable change.

tients with high pretest scores on the PI, BAI, and BDI did show reliable change, patients with low to moderate pretest scores did not. Thus, analysis of endstate functioning indicates good endstate functioning for the majority of patients across a range of variables. However, only the Y-BOCS, the most specific outcome variable in the study, indicates high clinically significant change as defined by the dual criterion in this study. The other variables, less specific to target symptoms but indicating a more general profile of functioning, appear to be affected by distribution effects and measurement factors.

There was some slippage on the Y-BOCS from posttest to follow-up but improvement on the other four variables. It seems that there was better overall adjustment at follow-up, despite some increase in symptom levels.

Medication

Of the 8 patients who completed treatment and were taking medication before treatment, none were taking anxiolytics at posttest. Of the 5 patients taking antidepressants before treatment (3 took clomipramine, 1 fluvoxamine, and 1 took fluoxetine), 1 had stopped, 2 were on low maintenance dosage (10

mg and 25 mg of clomipramine), 1 had substituted to sertraline, and 1 was still taking a full therapeutic dose of fluvoxamine (this last patient had previously been hospitalized 5 years earlier with anorexia). Thus, 6 of 8 patients taking medication reduced or eliminated medication. Medication remained unchanged at follow-up. Two patients had received some additional therapy, 1 for depression and 1 for marital difficulties.

Credibility and Expectancy

Mean scores on all six treatment and therapist items were greater than 4 (range, 1–5) both before and after treatment, indicating that the treatment logic, expected results, confidence to recommend to others, interest in applying strategies, and therapist warmth–understanding and attention were all very positively rated. There were no significant changes on the total score. There was, however, a significant change, $t(21) = 4.53$, $p < .001$, on the number of thoughts expected, which rose from a mean of 3.2 before treatment (equivalent to 10 per month) to 5.1 after treatment (equivalent to 10 per week). Patients revised their estimates upward, perhaps reflecting more realistic expectations based on base rate information provided during treatment (Freeston, Ladouceur, Thibodeau, & Gagnon, 1991; Rachman & de Silva, 1978). There were no correlations between pretreatment credibility–expectancy and any outcome measure.

Dropout

Patients who dropped out early ($n = 6$) were compared with those who completed ($n = 22$) using Mann-Whitney and Fisher's exact tests ($p < .05$) without adjusting significance levels. Patients who dropped out were older (44.3 vs. 33.3; $Z = 2.44$, $p < .05$), and their first consultation was later (39.5 vs. 24.4; $Z = 2.33$, $p < .05$). They were also more depressed (27.5 vs. 18.9; $Z = 2.33$, $p < .05$) and had more severe Y-BOCS obsession scores (13.2 vs. 10.1; $Z = 1.99$, $p < .05$), but there were no differences on the total score or any other variable. The possibility of Type I error is high for these analyses, but the differences in age (10 years in current age, and 15 years in age at consultation) are quite marked. The difference in depression has clinical significance with the dropout group mean score and all individual scores in the moderate to severe range (Beck et al., 1988).

Discussion

This study clearly demonstrates the efficacy of cognitive-behavioral treatment of obsessions without overt compulsions. Compared with the waiting-list control, there were significant improvements in the treatment group on the Y-BOCS total score, current functioning, self-report OCD symptoms, and self-reported anxiety. When the waiting-list control group was also treated, statistically significant treatment effects were recorded on all outcome measures. Among those who completed treatment, clinically significant gains were observed for the majority of patients. On the Y-BOCS, 67% of the total sample and 77% of completers showed clinically significant change. For the other variables, endstate scores within the functional distribution varied from 63% to 81% of completers at posttest. The average

effect size (Cohen's *d* for repeated measures; Cohen, 1988) was 1.39 (range, 0.78–2.48) for the primary outcome variables, comparing favorably with other treatment studies for OCD (see van Balkom et al., 1994).

At 6-month follow-up, there had been some slippage on the Y-BOCS mean scores and clinically significant change, but 91% of completers were still within the functional distribution. There were some gains on the other variables. Reviews of follow-up on OCD typically report some return of symptoms, but most retain their gains. Relapse prevention was included in the current treatment package, but future applications may benefit from more extensive and structured interventions. Recent studies indicate the benefits of more specific relapse prevention procedures (e.g., Emmelkamp, Kloek, & Blaauw, 1992; Hiss, Foa, & Kozak, 1994).

Treatment dropout occurred between the third and 10th week, which coincides with the most intensive part of exposure and response prevention. In fact, 4 patients refused exposure and 2 reported that the treatment no longer corresponded to their goals. The percentage that dropped out (22%) is similar to that reported in the Hoogduin et al. (1987) series (19%) and is not unlike dropout rates in earlier reports of exposure and response prevention treatments for overt compulsive rituals (e.g., Rachman et al., 1979) although more recent data indicate lower dropout (Riggs & Foa, 1993). Exposure is a demanding process, and it is perhaps not surprising that patients who dropped out were more depressed than the others; in fact, they all scored in the moderate-to-severe range on the BDI. This finding is only partially consistent with recent reports on OCD (e.g., Foa, Kozak, Steketee, & McCarthy, 1992) that found that initial depression levels have little impact on outcome on compulsive ritualizers. However, there is some evidence that obsessional severity fluctuates markedly with the severity of depressive symptoms, whereas compulsions do not (Ricciardi & McNally, 1995).

The treatment used in the present study was quite long but produced statistically and clinically significant gains in a subgroup of patients who have long been considered resistant to treatment (Greist, 1990; Jenike & Rauch, 1994). The length may, in some part, be due to the relative inexperience of the therapists in case management and in applying the new exposure and cognitive restructuring techniques. However, the treatment is not so long when compared with current intensive treatment programs for compulsive rituals that recommend more than 50 hr of treatment (e.g., Neziroglu, 1994; Riggs & Foa, 1993; Steketee, 1993).

Exposure and response prevention was taught and practiced in a systematic way for all patients. The same cannot be said for the cognitive restructuring because of the heterogeneous nature of target obsessions: Aggressive, sexual, somatic, neutral, contamination, and religious obsessions, as well as doubting about past actions, were all present. Not all forms of appraisal are relevant to all thoughts, preventing any great standardization of the techniques (see Freeston, Rhéaume, & Ladouceur, 1996). Principles of cognitive therapy (e.g., Socratic dialogue, downward arrow, noting and challenging automatic thoughts, behavioral experiments, etc.) were adapted to each client. In the absence of cognitive restructuring, successful exposure would have been difficult if not impossible in many cases. Not only did patients have to accept exposure, but effective cognitive

response prevention is difficult to achieve unless the patient collaborates completely.

The variable length of treatment and less-than-perfect correspondence between the timing of postwaiting-list and posttreatment assessment are potential limits to the study. We chose to provide every chance to successfully implement the new treatment package for each patient rather than to determine a standard treatment length a priori. It is unlikely that any changes could be explained by the passage of time alone. First, the scores did not change during the waiting-list. Second, this group has been considered resistant to cognitive-behavioral therapy (Greist, 1990; Jenike & Rauch, 1994). Third, placebo responses are considered minimal in OCD (van Balkom et al., 1994).

The possibility that posttreatment assessment may be somewhat confounded with the decision to terminate treatment cannot be eliminated within the present protocol. Those who finished treatment in 19 weeks or less were compared with those who received longer treatment. These analyses suggested that those who finished earlier also obtained greater improvement on OCD symptoms. By follow-up, those who were treated longer were more depressed. The results suggest a variable response to treatment, although therapy was continued to a preset maximum for slower responding or less responsive patients. Finally, treatment integrity was verified on a small proportion of sessions, but therapist competency was not assessed. Future studies should match timing of assessments in treatment and control groups, operationalize termination criteria, use masked assessment, and improve treatment integrity tests by checking both therapist adherence and integrity.

Since the completion of this trial, we have conducted a preliminary trial of cognitive therapy alone (without exposure) for patients without overt rituals (Léger, Freeston, & Ladouceur, 1996). Positive results in four of six cases indicate that cognitive therapy alone is feasible. Along with other authors (e.g., Salkovskis & Westbrook, 1987; Steketee, 1993), we believe that cognitive restructuring may be particularly useful in increasing treatment acceptance and adherence, reducing failures, and preventing relapse. Thus, we currently recommend vigorous cognitive restructuring whenever insisting on exposure appears to be leading to refusal or dropout (see Freeston, Rhéaume, & Ladouceur, 1996). However, we continue to recommend exposure and response prevention whenever possible because of its apparent potency in changing appraisals (e.g., Freeston & Ladouceur, 1995). The next step could be to compare the current combined package (used flexibly so as to minimize dropout) with pharmacological therapy, to establish its efficacy relative to the only other currently available treatment for obsessive thoughts (see Greist, 1990; Jenike & Rauch, 1994).

As has long been established for overt compulsive rituals, cognitive-behavioral therapy has now been shown to be an effective treatment of obsessional thoughts for the majority of those who complete treatment. However, the picture is less positive when it is considered that, of 36 eligible patients, 8 withdrew during or immediately after pretreatment assessment and 6 dropped out during treatment. When these are added to the 2 nonresponders, it is clear that there is still a great deal to be done. The overall portrait is, however, typical of OCD treatment studies in general (see Freeston, Ladouceur, & Bouchard, 1996, for a critique). The constraints of experimental protocols may

contribute to the losses during assessment and, to some extent, during therapy (e.g., exposure was an obligatory component and was introduced as early as possible). There is room for a great deal of improvement in helping patients commit to therapy and pursue their treatment goals to a successful conclusion. This situation is not unique to the patient subgroup treated here; the same points are raised by the leading proponents of exposure and response prevention for compulsive ritualizers (see Riggs & Foa, 1993). Despite this sobering note, the principal result stands: Effective cognitive-behavioral treatment does exist for OCD patients without overt rituals.

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