Cognitive Therapy and Exposure in Vivo Alone and in Combination With Fluvoxamine in Obsessive-Compulsive Disorder: A 5-Year Follow-Up

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Background: Information regarding the long-term effectiveness of the combination of pharmacotherapy and cognitive-behavioral therapy (CBT) in the treatment of obsessive-compulsive disorder (OCD) is limited. Our study is the first to examine the long-term effectiveness of cognitive therapy (CT) and to compare long-term effectiveness of CT alone, exposure in vivo with response prevention (ERP) alone, and CBT (either CT or ERP) in combination with fluvoxamine in the treatment of OCD.

Method: Of 122 outpatients with primary DSM-III-R–defined OCD originally enrolled in 2 randomized controlled trials, 102 patients (45 male/57 female; mean ± SD age = 36.2 ± 10.7 years; range, 19–64 years) were available to be assessed for the presence and severity of OCD and comorbid psychopathology at follow-up. Follow-up data were collected from November 1996 to June 1999.

Results: After 5 years, 54% of the participants no longer met the DSM-III-R criteria for OCD. Long-term outcome did not differ between the 3 treatment groups. At follow-up, treatment dropouts appeared to have more severe OCD complaints compared with treatment completers. Compared with patients receiving CT alone, significantly ($p < .005$) more patients receiving CBT with fluvoxamine used antidepressants 5 years later.

Conclusions: This study demonstrates that at 5-year follow-up (1) prevalence of OCD had declined in all 3 treatment conditions, (2) the clinical benefits of all 3 treatment conditions were maintained, (3) OCD complaints were more severe for treatment dropouts than for treatment completers, and (4) about half of the patients initially treated with fluvoxamine continued antidepressant use.

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Several studies have demonstrated that selective serotonin reuptake inhibitors as well as behavioral and cognitive therapies are effective in the treatment of obsessive-compulsive disorder (OCD).[1,2] In an effort to maximize treatment effect, in clinical practice, cognitive-behavioral therapy (CBT) is frequently combined with the prescription of antidepressants. However, the scientific grounds for this practice are surprisingly limited. In meta-analyses[2] on the treatment of OCD and in the 5 trials[3–7] directly comparing behavior therapy with potent serotonin reuptake inhibitors, behavior therapy was at least as effective as pharmacotherapy. There is some support for initially greater effectiveness of the combination of both treatments than either treatment alone; however, the superiority of the combination disappears after 2 to 3 months.[3–7] Furthermore, relapse after discontinuation of pharmacotherapy is frequent as compared with relapse rates after discontinuation of behavior therapy.[8] Several studies[9–12] have demonstrated that relapse rates after discontinuation of effective medication are very high.

The long-term effects of exposure in vivo with response prevention (ERP) and of serotonergic antidepressants in the treatment of OCD are well established.[2,11,13–17] Cognitive therapy (CT) has also been found to be an effective treatment for OCD.[7,18–21] However, available studies have not examined long-term effects of CT.

Given the relapse rates after discontinuation of antidepressants and the lack of clarity on the surplus effect of combining CT or ERP with pharmacotherapy in the long

term, we sought to evaluate the effectiveness of CT or ERP alone and in combination with fluvoxamine at 5-year follow-up. In previous publications,[6,21] we have described the results of 2 randomized controlled trials (RCTs) investigating the relative effectiveness of CT or ERP alone or in combination with fluvoxamine in the treatment of OCD. The present article reports a naturalistic 5-year follow-up investigating the differential effectiveness of CT and ERP alone and in combination with fluvoxamine in 102 patients with OCD.

METHOD

Subjects

The study was approved by the VU-University, Medical Centre Ethical Review Committee (Amsterdam, the Netherlands). All patients had participated in 1 of 2 two-site RCTs in the Netherlands.[6,21] The purpose of those trials was to investigate the differential effectiveness of CT versus ERP[21] and their combination with fluvoxamine in the treatment of OCD.[6] Approximately half of the patients took part in both studies. The procedures followed in the RCTs are summarized below. Data from the 2 original RCTs were combined; this is permissible since the inclusion criteria and recruitment were the same for both, identical treatment protocols were used, and all patients were treated at the same outpatient clinics in the Netherlands (in Delft and Amsterdam) by the same therapists during the same period. Furthermore, identical assessment methods and measurement intervals were used in both studies.

Patients aged between 18 and 65 years were included when they had met *Diagnostic and Statistical Manual of Mental Disorders*, Third Edition, Revised (DSM-III-R) criteria for OCD for at least 1 year. Patients with obsessions only, suicidal intent, organic brain disease, past or present psychosis, psychoactive substance use disorder, or severe medical disorders were excluded. All subjects were screened at the pretest assessment by an experienced psychiatrist or clinical psychologist using a Dutch version of the standardized Anxiety Disorder Interview Schedule-Revised (ADIS-R).[22] Other exclusion criteria were being in treatment elsewhere, receiving treatment with either behavior therapy or cognitive therapy in the 6 months preceding baseline, and using benzodiazepines in a dose of more than 15 mg of diazepam equivalents per day. Patients taking antipsychotics, mood stabilizers, or antidepressants were included if they were willing and able to stop taking these drugs at least 4 weeks before the pretest assessment.

All patients who participated in this study were treated at 2 psychiatric outpatient clinics specializing in the treatment of anxiety disorders. Patients meeting inclusion criteria gave informed consent and were randomly assigned to the treatment conditions. All subjects were recruited from referrals by general practitioners or mental health agencies or through newspaper announcements. Treatment protocols were used for all conditions, and the treatment duration was 16 weeks. All therapists had ample experience in the use of behavior therapy for the treatment of OCD and had received training in the uses of CT for this purpose. The CT protocol consisted of the application of techniques that were especially suitable for OCD. After session 6, behavioral experiments were introduced and were used to test the empirical basis of the patients' dysfunctional assumptions. The ERP protocol consisted of 2 components: self-exposure in vivo and self-imposed response prevention. In the first 6 sessions, special care was taken not to discuss the expectations of disastrous consequences. Further details of the treatments can be found elsewhere.[6,21]

Assessment for obsessive-compulsive symptoms and comorbid psychopathology using valid measurement instruments took place at pretest and posttest. No significant differences were found at posttest between CT and ERP or between these treatments alone and their combination with fluvoxamine. The results of a 6-month naturalistic follow-up corroborated the posttest results.[23]

In the present long-term follow-up study, data from the van Balkom et al.[6] study on fluvoxamine treatment combined with CT and fluvoxamine treatment combined with ERP were lumped together as fluvoxamine + CBT, since both treatment conditions had the sequential combination of fluvoxamine with CT or ERP (both CBT techniques) and both treatments were equally effective.

The initial intake procedure yielded 152 eligible patients. Thirty patients (20%) declined to participate in 1 of the 2 original randomized controlled studies for the following reasons: unwillingness to be randomly assigned to treatment in 1 of the 2 studies (N = 17), being unable or unwilling to stop taking antidepressants or antipsychotics (N = 5), and miscellaneous (N = 8). Of the 122 patients originally enrolled in the 2 studies, 20 (16.4%) did not participate in the follow-up at 5 years. One patient (0.8%) had committed suicide. In the original study, this patient was a treatment dropout due to protocol violation (admission to a psychiatric hospital because of suicidal intent). Four patients had moved to another country and their new addresses could not be traced, 6 patients could not be reached by telephone and did not respond to repeated mailings, and 9 patients refused to participate. Of the 102 patients who initially agreed to participate in follow-up measurements, 4 patients declined to complete the questionnaires but agreed to be interviewed. Conversely, 1 patient declined to be interviewed but agreed to complete the self-report form. Hence, 101 patients (83%) were interviewed, and 98 patients (80%) provided self-report data. Data from both sources were available for 97 patients (80%). Data were collected from November 1996 to June 1999.

Procedure

The participants were contacted 5 years (mean = 5.5 years, SD = 1.3 years) after the end of the initial RCTs. Both treatment completers and treatment dropouts from the RCTs were included in the present follow-up study. One hundred twenty-two participants were initially sent a letter inviting them to take part in this follow-up study. They were subsequently contacted by telephone and informed about the aims and procedures of the study and were asked to participate. If subjects consented, they received an informed consent form and self-report questionnaires. One week later, they were invited for a personal interview at 1 of the 2 psychiatric outpatient clinics involved.

Assessments

Follow-up interview. All patients were invited to come to the outpatient clinic, but if they declined, a telephone interview was conducted. Face-to-face interviews were held with 41% of the participants and telephone interviews with 59%. Telephone interviews are acceptable to patients if face-to-face interviews are impossible for any reason, and research supports the validity of structured telephone interviews for gathering information by telephone from mental health patients about anxiety and depression.[24–26] Analyses of OCD diagnostic status at follow-up determined from the diagnostic interview revealed no significant difference between the telephone and the face-to-face interview ($\chi^2 = 0.33$, df = 1, p = .85). Furthermore, no significant differences were found between telephone and face-to-face administration of the interview for the assessment of OCD symptom severity (t = 0.98, df = 99, p = .33).

The first 3 authors performed the follow-up assessments. They had no knowledge of the groups to which the patients had been assigned in the RCTs. Assessors were randomly allocated to the patients they diagnosed at follow-up. The interview lasted for 60 to 90 minutes and was structured in the form of a list of issues to be addressed. It yielded information about present anxiety disorders and major depressive disorder meeting the DSM-III-R criteria (ADIS-R).[22] In addition, the severity of obsessive-compulsive symptoms was assessed with the Yale-Brown Obsessive Compulsive Scale (YBOCS).[27,28] Patients were also asked about the treatment they had received during the follow-up period (current or past additional treatment [yes/no], psychotropic drugs [yes/no], type of drug, daily dosage). Finally, the self-report data were checked for completeness.

Self-report data. The same self-report measures for OCD, depression, and associated psychopathology were used as in the initial RCTs: (1) the Padua Inventory-Revised (PI-R),[29] 41 items with a score range of 0 to 164; (2) the Anxiety Discomfort Scale (ADS),[30] which included 5 idiosyncratic items and had a score range of 0 to 40; (3) the revised Symptom Checklist (SCL-90-R)[31] with 90 items and a score range of 90 to 450; and (4) the Beck Depression Inventory (BDI),[32] 21 items with a score range of 0 to 63.

Statistical Analysis

Nonparametric and parametric tests were used to assess differences between the various treatments with regard to baseline measurements of relevant demographic and clinical variables. The interaction effects of the follow-up results were analyzed using multivariate analysis of covariance (MANCOVA), with the pretests as covariates. Furthermore, we performed an intent-to-treat analysis in which the nonparticipants of the follow-up study were also included. The last-observation-carried-forward approach was adopted for this analysis. Two MANCOVAs were also performed for this analysis. Significant multivariate interaction effects were further analyzed with pairwise comparisons. Paired t tests were used to assess change over time between pretest and follow-up and between posttest and follow-up within each treatment condition.

Chi-square tests were performed to investigate the differences between the outcomes of the various treatments for current disorders at follow-up and of any additional treatment given during follow-up. Effect sizes were calculated within the treatment conditions using Cohen's formula.[33]*

The standardized method of Jacobson and Truax[34] was used to determine statistically reliable change, yielding a Reliable Change Index (RCI) of patient improvement as assessed on the YBOCS. If the RCI is higher than 1.96, the probability that the mean difference in treatment outcome occurred by chance is less than .05. According to Jacobson and Truax, subjects are "recovered" when they meet the 2-fold criteria for clinically significant change: RCI and determination of recovery. Since calculation of change and determination of recovery are complementary procedures, we investigated both the RCI and the determination of recovery. Recovery status is normally determined when the follow-up score is closer to standardized scores for nonclinical samples than to the pretest score. However, since the nature of the YBOCS does not allow adequate norms for nonclinical samples to be determined, determination of recovery in the present study was defined as a follow-up score that was minimally 2 standard deviations lower than the mean baseline score. Finally, nonparametric tests were performed to compare the recovery percentages achieved

*Effect Size $= \dfrac{x_1 - x_2}{\sqrt{s_1^2 + s_2^2 - 2r_{12}}}$

Where x_1 = mean pretest scores, x_2 = mean posttest or follow-up scores, s_1 = standard deviation of pretest scores, s_2 = standard deviation of posttest or follow-up scores, r_{12} = Pearson correlation between pretest and posttest or follow-up scores.

Table 1. Baseline Characteristics and Diagnostic Features of Obsessive-Compulsive Disorder (OCD) Patients Receiving Cognitive Therapy (CT), Exposure in Vivo With Response Prevention (ERP), or Fluvoxamine Plus Cognitive-Behavioral Therapy (CBT)

Characteristic	CT (N = 32)	ERP (N = 31)	Fluvoxamine + CBT (N = 39)	Included in Follow-Up (N = 102)	Not Included in Follow-Up (N = 20)[a]
Male sex, %	44	52	39	44	25
Married/cohabiting, %	59	36[b]	67	55	60
Follow-up period, mean (SD), y	5.5 (1.3)	5.5 (1.3)	5.5 (1.4)	5.5 (1.3)	…
Education level, %					
Low	16	32	31	27	53
Medium	47	26	38	37	26
High	37	42	31	36	21
Age at onset ≤ 18 y, %	34	42	44	40	50
Age, mean (SD), y	33 (10)	35 (10)	40 (11)[c]	36 (11)	29 (9)
Total YBOCS score, mean (SD)	24.1 (6)	26.0 (7)	25.7 (8)	25.3 (7)	23.7 (8)
Duration of OCD, mean (SD), y	10 (9)	14 (11)	15 (10)	13 (10)	10 (8)
Comorbid disorder, %[d]	48	37	46	43	53

[a]N = 19 for education level and comorbid disorder; data missing for 1 subject.
[b]$p < .028$ compared with other treatment groups ($\chi^2 = 7.2$, df = 2).
[c]$p < .031$ compared with other treatment groups ($F = 3.6$, df = 2).
[d]Including all DSM-III-R anxiety disorders and major depressive disorder.
Abbreviation: YBOCS = Yale-Brown Obsessive Compulsive Scale.

with the various treatments. Data were analyzed using the personal computer version of the Statistical Package for the Social Sciences (SPSS Inc., Chicago, Ill.).

RESULTS

Baseline Characteristics

One hundred two patients (45 male, 57 female) were available for follow-up. The mean age at baseline was 36.2 years (SD = 10.7; range, 19–64 years), and the mean duration of OCD complaints at baseline was 12.8 years (SD = 10.3). Table 1 summarizes the baseline characteristics and shows that there were significant differences between the 3 treatment groups with regard to the demographic variables marital status and age: fewer patients receiving ERP treatment were married or cohabiting ($\chi^2 = 7.2$, df = 2, $p < .028$), while participants in the fluvoxamine + CBT group were older at baseline ($F = 3.6$, df = 2, $p < .031$). Table 1 also reveals that almost half of the OCD patients suffered from a comorbid anxiety disorder or major depressive disorder at baseline.

There was no significant association between type of treatment and attrition at 5-year follow-up. Participants were compared with those lost to follow-up on all relevant demographic and clinical variables measured at pretest. Nonparticipants were significantly younger ($F = 7.6$, $p < .007$) than participants and had a lower educational level ($\chi^2 = 6.1$, df = 2, $p < .047$). No differences were found with respect to sex, age at onset (≤ 18 vs. > 18 years), duration of OCD, total YBOCS score, comorbid disorder, or marital status ($p > .10$).

Improvement at 5-Year Follow-Up

Table 2 presents mean scores, standard deviations, and effect sizes for OCD complaints and general complaints at pretreatment, posttreatment, and 5-year follow-up for each treatment group. Paired t tests comparing pretreatment and 5-year follow-up scores showed significant improvement for all outcome variables in each treatment group separately, with alpha set at .025 (Bonferroni correction). The majority of the improvement took place between pretest and posttest. Paired t tests comparing posttreatment and follow-up scores revealed no significant changes on any of the outcome measures except the ADS. Scores on the ADS showed significant improvement between posttreatment and 5-year follow-up scores in all treatment conditions. As seen in Table 2, effect sizes were > 1.00 for most measures of OCD and were around 0.60 for comorbid psychopathology in all treatment groups.

Two MANCOVAs were performed to analyze follow-up scores of participants in the 3 groups, using pretest scores as covariate: one with the obsessive-compulsive measures (YBOCS, PI-R, and ADS) and the other with the generalized measures (BDI and SCL-90-R). No statistically significant interaction effects were found on obsessive-compulsive measures ($F = 1.14$, df = 6,168; $p = .33$). Furthermore, we found no significant interaction effects on the associated psychopathology measures ($F = 0.12$, df = 4,180; $p = .98$). The results thus demonstrated that the 3 treatments did not differ substantially in effectiveness after 5 years.

Intent-to-treat analyses were performed on a larger sample (N = 122). Two MANCOVAs comprising participants (N = 102) and nonparticipants (N = 20) of this study were performed. The last-observation-carried-forward approach was adopted for this analysis. The results of the intent-to-treat analyses (including the nonparticipants) were identical to those of the participant analyses. No statistically significant interaction effects

Table 2. Posttest and 5-Year Follow-Up Outcome Variables for OCD Patients Receiving Cognitive Therapy (CT), Exposure in Vivo With Response Prevention (ERP), or Fluvoxamine Plus Cognitive-Behavioral Therapy (CBT)

	CT			ERP			Fluvoxamine + CBT		
Outcome Measure	N	Mean (SD)	Effect Size	N	Mean (SD)	Effect Size	N	Mean (SD)	Effect Size
Obsessive-compulsive measures									
Padua Inventory-Revised									
Pretest	32	76.4 (23.1)		31	69.6 (20.0)		38	65.9 (20.5)	
Posttest	28	53.2 (29.9)	1.07	27	58.6 (23.8)	0.63	27	52.4 (25.7)	0.72
Follow-up	30	45.6 (33.0)	1.11	30	52.2 (26.1)	0.78	36	50.9 (25.8)	0.67
YBOCS									
Pretest	32	24.1 (5.9)		31	26.0 (6.8)		38	25.7 (7.6)	
Posttest	29	13.8 (9.3)	1.22	28	18.0 (7.9)	1.04	28	13.9 (6.4)	1.61
Follow-up	32	12.3 (8.9)	1.30	30	15.1 (9.9)	1.07	38	14.9 (9.1)	1.09
ADS									
Pretest	32	29.2 (5.2)		31	32.0 (4.5)		38	28.5 (5.2)	
Posttest	28	14.0 (10.4)	1.65	28	18.5 (9.0)	1.71	26	15.6 (9.4)	1.54
Follow-up	30	11.5 (10.0)	1.76	30	14.5 (11.2)	1.74	38	15.4 (9.9)	1.31
Generalized measures									
SCL-90-R									
Pretest	32	203.1 (68.1)		31	192.1 (48.9)		38	205.6 (55.4)	
Posttest	28	171.5 (66.5)	0.55	28	178.0 (50.3)	0.33	26	157.8 (48.5)	1.07
Follow-up	30	158.7 (60.1)	0.69	30	163.6 (45.9)	0.60	37	174.7 (61.2)	0.53
BDI									
Pretest	31	18.2 (11.1)		31	16.7 (8.8)		39	18.5 (10.4)	
Posttest	28	12.3 (11.1)	0.66	28	12.8 (8.6)	0.56	27	10.4 (6.8)	1.06
Follow-up	30	11.1 (10.2)	0.63	30	11.8 (8.8)	0.53	37	13.2 (9.1)	0.51

Abbreviations: ADS = Anxiety Discomfort Scale, BDI = Beck Depression Inventory, OCD = obsessive-compulsive disorder, SCL-90-R = revised Symptom Checklist, YBOCS = Yale-Brown Obsessive Compulsive Scale.

were found between the 3 treatment groups on obsessive-compulsive measures ($F = 1.25$, $df = 6,226$; $p = .28$) or on the associated psychopathology measures ($F = 0.45$, $df = 4,232$; $p = .33$).

Clinically Significant Changes

We also established clinically significant improvement at follow-up. The total score on the YBOCS was used to determine the improvement (according to the RCI) and recovery status. The cutoff point for the RCI on the YBOCS is ≥ 7. Participants were considered to be recovered if they had a score of ≤ 12 on the YBOCS and this score represented an improvement of ≥ 7 compared with their pretest score. Patients whose YBOCS score rose by ≥ 7 between pretreatment and follow-up were considered to have deteriorated. An overview of recovery, improvement, and the number of participants who no longer met the DSM-III-R criteria for OCD at follow-up is presented in Table 3.

Seventy-eight percent of participants in the CT group, 67% of the ERP group, and 74% of the fluvoxamine + CBT group showed improvement. Rates of recovery, improvement, and lack of improvement did not differ significantly between the 3 treatment groups. Furthermore, a total of 53.5% of participants no longer met DSM-III-R criteria for OCD at 5-year follow-up as measured with the ADIS-R, while 39.6% no longer met criteria for any anxiety disorder or major depressive disorder. Rates of comorbidity did not differ significantly between the 3 conditions at follow-up.

Treatment Dropouts

Twenty patients (19.6%) who participated in this study were treatment dropouts from the original RCTs. However, these treatment dropouts were willing to participate in this long-term follow-up study. Paired t test showed a significant improvement on the YBOCS ($t = 3.22$, $df = 19$, $p < .005$) at 5-year follow-up in this group. We compared the improvement in OCD symptoms of treatment dropouts and of treatment completers with an ANCOVA using follow-up YBOCS scores (with the pretest scores as covariate). Despite a significant improvement of the group of treatment dropouts, the results of the ANCOVA showed a superior effect on severity of OCD complaints for treatment completers 5 years later (YBOCS: $F = 5.03$, $df = 1$, $p < .03$).

Treatment During the Follow-Up Period

We distinguished 2 forms of additional therapy, namely psychotropic drug use at follow-up and psychotherapy during the follow-up period. Only 6 patients (6%) were using psychotropic drugs other than antidepressants (benzodiazepines 4%, antipsychotics 1%, lithium in combination with antipsychotics 1%) at follow-up. We therefore decided to analyze patients' antidepressant usage at follow-up only. More than half ($N = 20$; 51%) of the participants who had received fluvoxamine + CBT in the original RCT were using antidepressants 5 years later. Of the subjects receiving CT or ERP only during the initial RCTs, 19% ($N = 6$) and 33% ($N = 10$), respectively, were using antidepressants at follow-up. A χ^2 test comparing

Table 3. Clinically Significant Changes Measured With YBOCS and ADIS-R at 5-Year Follow-Up in OCD Patients Receiving Cognitive Therapy, Exposure in Vivo With Response Prevention, or Fluvoxamine Plus CBT

	No Longer Met DSM-III-R OCD Criteria (ADIS-R)[a]		No Longer Met DSM-III-R Criteria for Any Anxiety or Major Depressive Disorder[b]		Met Jacobson Criteria (YBOCS)			
					Recovery[c]		Improvement[d]	
Treatment	N	%	N	%	N	%	N	%
Cognitive therapy (N = 32)	20	62.5	13	40.6	17	53.1	25	78.1
Exposure in vivo with response prevention (N = 30)	14	46.7	10	33.3	12	40.0	20	66.7
Fluvoxamine + CBT (N = 39)[e]	20	51.3	17	43.6	14	36.8	28	73.7

[a] $\chi^2 = 1.68$, df = 2, p = .43.
[b] $\chi^2 = 0.77$, df = 2, p = .68.
[c] $\chi^2 = 2.03$, df = 2, p = .36.
[d] $\chi^2 = 1.05$, df = 2, p = .59.
[e] N = 38 for Jacobson recovery and improvement analyses, since pretest and follow-up YBOCS scores were available for 38 of the 39 patients.
Abbreviations: ADIS-R = Anxiety Disorder Interview Schedule-Revised, CBT = cognitive-behavioral therapy, OCD = obsessive-compulsive disorder, YBOCS = Yale-Brown Obsessive Compulsive Scale.

antidepressant use at follow-up between treatment conditions proved significant ($\chi^2 = 8.33$, df = 2, $p < .016$). Further inspection of the data revealed that the rate of antidepressant use at follow-up was significantly higher in the fluvoxamine + CBT group when compared with the CT group ($\chi^2 = 8.02$, df = 1, $p < .005$), but not when compared with the ERP group ($\chi^2 = 2.55$, df = 1, p = .11).

With respect to psychotherapy, we found that 64 patients (63%) received additional psychotherapy (alone or in combination with pharmacotherapy) during the follow-up period. Seventy-two percent (N = 28) of the participants who had received fluvoxamine + CBT in the original RCT received additional psychotherapy during the follow-up period. Of the subjects receiving CT or ERP only during the initial RCTs, 53% (N = 17) and 63% (N = 19), respectively, received additional psychotherapy during the follow-up period. Analyses of these data revealed no significant differences between the group who received fluvoxamine + CBT in our trial and those who did not ($\chi^2 = 2.64$, df = 2, p = .27).

DISCUSSION

Main Findings

To the best of our knowledge, this is the first study to evaluate the long-term effects of CT in the treatment of OCD. The results clearly reveal the long-term benefits of CT in this context and indicate that the clinical benefits of CT alone, ERP alone, and fluvoxamine in combination with CBT are maintained at 5-year follow-up. More than half (53.5%) of the participants no longer met DSM-III-R criteria for OCD at follow-up, while 39.6% no longer met criteria for any anxiety disorder or major depressive disorder. There was no significant difference in clinical outcome between CT, ERP, and CBT in combination with fluvoxamine. Furthermore, almost three quarters of all patients fulfilled criteria for reliable improvement in OCD symptoms. On the other hand, there was still a significant proportion (27%) who did not show reliable long-term improvement at follow-up. In this 5-year period, treatment dropouts improved significantly less compared with treatment completers on severity of OCD complaints. Additional research is needed to gain more insight into the characteristics and development of complaints of this group after termination of treatment.

Although all treatment conditions were equally effective in the treatment of OCD, there were significantly more patients using antidepressants at 5-year follow-up in the group receiving fluvoxamine in the RCT than in the group receiving CT. These findings suggest that patients who were randomly allocated to fluvoxamine in the original RCT may find it difficult to discontinue the use of antidepressant medication in the long term. It has been noted that patients initially treated with serotonin reuptake inhibitors have a tendency to remain on their medication regimens after a follow-up of 1 to 3.5 years.[12,35]

Comparison of Effects

The long-term effect size of treatment with regard to OCD symptoms ranged from 0.67 to 1.76, and most effect sizes were above 1.0. Effect sizes of other symptoms of psychopathology were between 0.51 and 0.69. Several studies have demonstrated that both selective serotonin reuptake inhibitors and behavioral or cognitive therapies are effective in the treatment of OCD.[1,2] Antidepressants and CBT are frequently combined in clinical practice in an effort to maximize treatment effectiveness. The results of RCTs do not support the superiority of this combined approach in the short term.[3–7] Results of the present study suggest that there might not be a surplus effect of the combined approach in the long term. The long-term effect sizes reported in this study for behavior therapy and for a combined treatment of CBT with serotonergic antidepressant are in line with those described in review articles.[2,13,14] However, effect sizes reported in this article may be inflated due to factors unrelated to the treatment such as possible instability of symptoms over time and regression to the mean.

Methodological Issues

Some limitations of the present study need to be addressed. Since this study is a naturalistic follow-up, we did not control the treatments the participants received during the follow-up period. Almost two thirds (63%) of all patients received some form of additional treatment (either pharmacologic or psychological) after the RCTs; as a result, it is impossible to determine whether the long-term effects were due solely to the persistence of the results of the original treatment or at least in part to interaction with additional treatment received after the trial.

Furthermore, this study might be criticized because of the lack of a control group. However, in view of the known benefits of the various forms of treatment available for OCD, it would have been neither desirable nor ethically justifiable to withhold treatment from randomly selected patients over a 5-year period just to provide a statistical control. It seems unlikely that patients would have improved spontaneously in the long term, as naturalistic studies of the longitudinal course of OCD indicate that patients suffer from chronic and often lifelong symptoms.[36]

Other potential criticisms involve the sample loss during enrollment and over time. Although the response in this follow-up study was substantial, the results might have been different if all eligible subjects had been evaluated at follow-up. The fact that we approached both treatment completers and treatment dropouts from the original RCTs doubtlessly had a marked effect on the relatively high response rate. In fact, 84% of patients who participated in the original RCTs took part in this study and completed all the assessments. A comparison of participants and nonparticipants revealed that the nonparticipants were significantly younger and were less well educated at baseline. One possible explanation for the age difference is that younger people may be less available for long-term follow-up due to a greater tendency to migrate. The mean age of patients who were untraceable and therefore lost to follow-up was 26.6 years (SD = 5.9, N = 10), while the mean age of the patients who refused to participate was 33.3 years (SD = 10.7, N = 8).

In summary, this study provided evidence for the long-term effectiveness of CT, ERP, and fluvoxamine plus CBT in the treatment of OCD. Only around 5% of the study group showed signs of clinical deterioration during the lengthy follow-up period. Furthermore, this study demonstrated that more than half of all participants no longer met the criteria for OCD caseness in the epidemiologic sense after 5 years. Although all 3 forms of treatment tested were equally effective in the treatment of OCD, about half of the patients initially treated with fluvoxamine continued using antidepressants, and current antidepressant use was more frequent in this group than in patients in the CT group. Finally, patients who dropped out from the original RCTs were less improved than treatment completers on the YBOCS 5 years later. Further studies are needed to investigate the relative cost-effectiveness of CBT alone and in combination with antidepressants in OCD patients. Although the results of this study are encouraging, more attention needs to be devoted to determining why some patients fail to make a complete recovery and to furthering improvement of the treatment of OCD.

Drug names: diazepam (Valium and others), lithium (Lithobid, Eskalith, and others).

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