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Cognitive-Behavioral Group Therapy in Obsessive-Compulsive Disorder: A Randomized Clinical Trial

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Key Words

Obsessive-compulsive disorder · Cognitive-behavioral group therapy · Group therapy · Behavior therapy · Cognitive therapy · Quality of life

Abstract

Background: The present study was designed to verify the efficacy of cognitive-behavioral group therapy (CBGT) in reducing obsessive-compulsive symptoms and the intensity of overvalued ideas, as well as in improving the patient's quality of life. **Methods:** Forty-seven patients meeting DSM-IV criteria for obsessive-compulsive disorder (OCD) were randomly assigned to either 12 weekly CBGT sessions or a waiting list (control group). Treated patients were followed for three months. **Results:** There was a significant reduction in the Yale-Brown Obsessive-Compulsive Scale ($p < 0.001$), in the National Institute of Mental Health Obsessive-Compulsive Scale ($p < 0.001$), in the Overvalued Ideas Scale ($p < 0.001$), and a significant improvement in the quality of life in the four domains of the World Health Organization Quality of Life Assessment Scale: physical ($p < 0.001$), psychological ($p < 0.017$), social ($p < 0.018$) and environmental ($p < 0.04$). No significant reduction was found in the Hamilton Rating Scale for Anxiety ($p = 0.111$) and the Hamilton Rating Scale for Depression ($p = 0.271$). The concomitant use of anti-obsessional medications did not influence the results. The rate of improved patients was 69.6% in the treated group and 4.2% in the control group ($p < 0.001$). The therapeutic gains were maintained and an additional reduction in symptoms was observed during the 3-month follow-up period. **Conclusions:** The results suggest that CBGT is effective in reducing the intensity of OCD symptoms and of overvalued ideas, and that it improves the OCD patient's quality of life in a short period of time.

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Introduction

Behavior therapy of exposure and response prevention (ERP) and pharmacotherapy are the treatments of choice for obsessive-compulsive disorder (OCD) [1]. Many patients, however, do not adhere to ERP, drop-outs are common, and response is poor when obsessions are not followed by rituals and when the beliefs about obsessions are overvalued. On the other hand, a limited reduction of symptoms, side effects, and frequent relapses are the limitations of drug therapy.

Cognitive techniques [2–5] and group therapy [6–8] have been proposed to enhance response and adherence to psychotherapy and make it available to a greater number of patients at a lower cost. Few controlled studies, however, have assessed the efficacy of group treatment so far. Falls-Stewart et al. [7] showed that behavioral group therapy was as effective as individual behavior therapy in reducing OCD symptoms. McLean et al. [9] compared cognitive group therapy with ERP group therapy. ERP was marginally more effective than cognitive group therapy at the end of treatment and at 3 months follow-up. Controlled studies using both approaches in one group at the same time were not found.

The primary goal of our study was to verify the efficacy of cognitive-behavioral group therapy (CBGT) in reducing OCD symptoms. The secondary goal was to verify the efficacy of CBGT in reducing the intensity of overvalued ideas and improving quality of life; we further wanted to evaluate whether the concomitant use of anti-obsessional medication influences the results.

Method

Study Design

The study was carried out using a single-blind, parallel group design. Subjects were randomly allocated to CBGT or to control groups using a computer-generated list of random numbers provided by an independent statistician. The random allocation was done by a researcher not involved in the clinical trial.

Subjects

Subjects were recruited by means of advertisements on local radios, TV programs and newspapers. The initial evaluation was performed by an experienced psychiatrist using a structured clinical interview and the diagnostic instrument Mini-International Neuropsychiatric Interview (MINI) [10, 11].

Inclusion criteria were: OCD diagnosis according to DSM-IV criteria, age between 18 and 65 years, Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) score ≥ 16 , no use of anti-obsessional medication or use of a stable dose for at least 3 months prior to entering the study, and willingness to participate in 12 CBGT sessions. Sixty-five patients were evaluated, 47 were selected and 18 excluded. The reasons for exclusion were: depression with suicide risk ($n = 2$), OCD initiated after traumatic brain injury ($n = 1$), severe social phobia ($n = 2$), mental retardation ($n = 1$), severe anorexia nervosa ($n = 1$), severe personality disorders ($n = 2$), and a score < 16 on the Y-BOCS ($n = 3$). Six patients, although suitable, refused treatment. Of the 47 selected patients, 23 were assigned to treatment with CBGT for 12 weeks and 24 to a waiting list (control group) during the same period. Two patients (4.3%) dropped out: one from the treatment group (after the third session) because he had severe symptoms of anxiety during ERP homework exercises, and one from the control group (did not attend the final evaluation). The study was approved by the local ethics committee. Written informed consent was obtained from all patients before entering the study.

Assessment

The following scales were used to evaluate outcomes:

The Y-BOCS [12] was used to assess the intensity of OCD symptoms. It comprises 10 questions: five for obsessions and five for compulsions, with scores from 0 to 4 (total score range: 0–40).

The National Institute of Mental Health Obsessive-Compulsive Scale (NIMH-OC) was used to assess the global severity of OCD symptoms. Range: 1–15, divided into five subscales: minimal, sub-clinical, clinical, severe and very severe [13].

Hamilton Rating Scale for Anxiety (HamA) was used to measure the severity of anxiety symptoms (range: 0–56) [14].

The 17-item version of the Hamilton Rating Scale for Depression (HamD) was used for measuring the severity of depressive symptoms (range: 0–52) [15].

The Overvalued Ideas Scale (OVIS) was used to measure the intensity, rigidity and insight of related beliefs. It consists of 10 analog subscales, with 10 points each. The final score is divided by 10 (range: 0–10) [16].

The World Health Organization Quality of Life Assessment – Abbreviated Version (WHOQOL-BREF) was used to assess four domains of quality of life: physical, psychological, social and environmental. An SPSS program was used to calculate the final scores in each domain.

Patients of both groups were rated by three independent raters, blinded for patient group allocation, before the beginning of the treatment and after the fourth, eighth and twelfth sessions, except for WHOQOL-BREF, which was self-administered at the beginning and the end of treatment, as well as at follow-up. In addition, treated patients were evaluated in the first, second and third months post-treatment.

Procedures

The study was conducted in three successive periods of 12 weeks, with one treatment and one parallel control group at each time. Groups had eight patients each, except for one treatment group that had seven participants. All sessions were conducted by the same therapist, assisted by a co-therapist, both specialized in psychiatry and with a CBT experience of at least 10 years. Patients in the control group were offered the same treatment after the waiting period, but these data were not included in the present study.

The treatment emphasized psycho-education, ERP techniques [17–19], cognitive techniques to change dysfunctional beliefs [2–5, 19], and group techniques [8, 20–22].

CBGT consisted of 12 two-hour sessions, carried out once a week according to a protocol previously tested [23]. The treatment opened with a presentation of OCD symptoms, the rationale of ERP therapy and treatment targets, followed by demonstrations and practical ERP exercises. In the subsequent sessions, commonly held dysfunctional beliefs about OCD were explained [24] and cognitive techniques for their corrections [2, 3, 19, 25] were given, followed by practical exercises of ERP and cognitive restructuring. At the end of each session, homework exercises were assigned to each patient. In the final sessions, the focus was on strategies for relapse prevention. The control waiting list patients were not given any information or expectations of improving during the waiting period.

Statistics

Baseline data were compared between groups in relation to demographic variables, severity of symptoms, quality of life and use of anti-obsessional medication using a t test for continuous variables and the χ^2 test for nominal variables. Outcome variables were assessed in both groups using repeated measures ANOVA with the scores obtained at four different moments during treatment. In the treatment group, 23 patients were scored at baseline, and 22 patients at the 4th, 8th and 12th week; 24 patients in the control group were evaluated at baseline, at the 4th and 8th week, and 23 at the 12th week. The last-observation-carried-forward approach was adopted for continuous data. χ^2 test was used for dichotomic data (improved versus non-improved). The criterion for improvement was a reduction of $\geq 35\%$ on the Y-BOCS [24] at end point. An intention-to-treat approach was used for patients who dropped out, labeled non-improved. Significance level was set at $\alpha \leq 0.05$ (two-tailed).

Results

Baseline Data

The sample included 24 women and 23 men; mean age was 36.5 years (SD = 12.8). Patients had symptoms for a mean of 21.1 years (SD = 11.2); mean age at onset was 14.7 years (SD = 6.64). Onset was gradual and not related to any stress factor in 70.2% of the cases.

Twenty-one patients (44.7%) – 10 in the treatment group and 11 in the control group – were using and had stabilized under anti-obsessional drugs in variable doses and for different periods of time (from 3 months to 12 years, mean = 20 months, SD = 24.4 months). Medication and doses were not different between the two groups and were not modified during treatment and the 3-month follow-up. The medication used was clomipramine in 7 patients (75–250 mg/day, mean = 142.5 mg/day), fluoxetine in 10 patients (20–80 mg/day, mean = 47 mg/day), sertraline in 2 patients (50 and 100 mg/day), and paroxetine in 2 patients (20 and 60 mg/day).

No significant differences were observed at baseline between the treated and the control groups regarding gender, age, OCD duration, age at onset, scores assessing OCD severity, anxiety, depression, overvalued ideas and quality of life. Patients using anti-obsessional medication (n = 21) were homogeneously distributed between the two groups and presented slightly higher Y-BOCS mean scores at baseline; however, these differences were not significant. Mean Y-BOCS scores were 28.7 (SD = 4.5) in the treatment group and 26.4 (SD = 5.6) in controls (t = 1.005, d.f. = 19, p = 0.328). Mean Y-BOCS scores in patients without medication (n = 26) were 25.2 (SD = 4.7) in the treatment group and 23.2 (SD = 4.5) in the control group (t = 1.066, d.f. = 24, p = 0.297).

Treatment Effects

Repeated measures ANOVA showed a significant interaction between time and treatment for the following outcome variables: Y-BOCS ($F = 14.01$, $d.f. = 3.45$, $p < 0.001$); Y-BOCS Compulsions subscale ($F = 6.38$, $d.f. = 3.45$, $p < 0.001$); Y-BOCS Obsessions subscale ($F = 10.88$, $d.f. = 3.45$, $p = 0.001$); OVIS ($F = 11.06$, $d.f. = 3.45$, $p < 0.001$); NIMH-OC ($F = 13.7$, $d.f. = 3.45$, $p < 0.001$). No significant interaction between time and treatment was found in HamA ($F = 2.04$, $d.f. = 3.45$, $p = 0.111$) and HamD ($F = 1.3$, $d.f. = 3.45$, $p = 0.271$). By the 8th week, the treated group had significantly improved on the Y-BOCS, its obsessions and compulsions sub-scales, and on the NIMH-OC rating scales compared with the waiting list group. Improvement on the OVIS was also statistically significant by the 12th week of treatment. Mean Y-BOCS scores for the four measurement points are presented in figure 1. Baseline and end point scores in the control and in the treated group are presented in table 1.

Clinical Relevance

The rate of improved patients (reduction of $\geq 35\%$ on the Y-BOCS) was 69.6% in the treated group and 4.2% in the control group ($\chi^2 = 21.757$, $d.f. = 1$, $p < 0.001$). Improvement odds ratio for treated patients was 16.69 (95% CI = 2.2–115.9), and 0.318 (95% CI = 0.17–0.592) for controls; 47.8% of patients presented sub-clinical or mild levels of symptoms (Y-BOCS < 16) at end point, and none was from the control group. The effect size of treatment on the Y-BOCS was calculated according to the following formula:

$$ES = \frac{x_2 - x_1}{\sqrt{s_1^2 + s_2^2 - 2r_{12}s_1s_2}}$$

where x_1 = pre-scores; x_2 = post-scores; s_1 = standard deviation of pre-scores; s_2 = standard deviations of post-scores; r_{12} = Pearson correlation between pre- and post-scores [26]. It was 1.33 in the treated group and 0.43 in the control group.

Associated Use of Anti-Obsessional Medication

No significant differences were observed at end point between treated patients and controls in relation to the concomitant use of anti-obsessional medications. Final Y-BOCS scores, means, t and p values were as follows: (1) treated patients with medication: mean = 16.0 (SD = 9.6); without medication: mean = 14.4 (SD = 6.4), $t = 0.485$, $d.f. = 21$, $p = 0.633$; (2) controls with medication: mean = 25.2 (SD = 6.2); without medication: mean = 21.5 (SD = 4.4), $t = 1.723$, $d.f. = 22$, $p = 0.099$. Differences in the other variables were not significant either.

Follow-Up

At the end of the 12 weeks of treatment, 22 treated patients were followed for 3 months. Post-treatment mean scores were compared with the scores obtained at follow-up (two-tailed t test). A significant reduction on the Y-BOCS, Y-BOCS obsessions subscale and the OVIS was observed (table 1). On the other hand, the rate of patients presenting a reduction of $\geq 35\%$ on the Y-BOCS increased from 69.6% at the end of treatment to 73.9% 3 months later, and the rate of patients with mild or sub-clinical symptoms (< 16 on the Y-BOCS) increased from 47.8 to 65.2% in the same period. These results suggest that therapeutic gains were maintained and that an additional reduction in symptoms occurred during the 3-month follow-up period. This effect was particularly evident for obsessions and overvalued ideas.

Discussion

The results of the present study show that CBGT reduces the intensity of obsessive-compulsive symptoms. In addition, it reduces the intensity of overvalued ideas and improves the quality of life of OCD patients. None of these improvements was observed in the control group. A 3-month follow-up of the treated group showed that a further improvement occurred after treatment, with a greater number of patients being considered improved (from 69.6 to 73.9%) and with mild or sub-clinical symptoms (from 47.8 to 65.2%). These results suggest that the effects of CBGT persist, and that further therapeutic effects may develop over time.

The 69.6% rate of improved patients was higher than that observed with pharmacological treatment (from 51 to 60%) using similar criteria [27]. The calculated effect size was 1.33, which is higher than the results reported by recent studies: 0.82 for serotonin reuptake inhibitors, 0.99 for ERP therapy, and 1.07 for ERP associated with anti-obsessional medication [28]; 0.79 and 1.01 for CBGT open trials [6, 21]. The effect size of the present study was smaller than the 2.10 achieved by Falls-Stewart et al. [7, 8]. This may be due to the fact that there were some important differences between the two studies: we included patients with severe symptoms (30% of patients had initial scores ≥ 30 on the Y-BOCS); our initial mean score was 26.7, compared to 22.1 in Falls-Stewart et al.'s study [7]; we used only 12 weekly sessions and included patients with major depression and several comorbidities, while in the study of Falls-Stewart et al. such patients were excluded, and sessions were held twice a week (total of 24 sessions). In addition, in the present study, cognitive therapy was used in association with ERP techniques.

- 431 The associated use of medication was maintained dur-
432 ing our study and apparently did not influence the results.
433 No differences were observed in the two groups at end
- 434 point in relation to the concomitant use of anti-obsession-
- 435 al drugs. The small subsamples of patients with and with-
436 out medication and the low doses used by some of our
- 437 patients, eventually not appropriated, limit the generali-
438 zation of the results of the present study. On the other
439 hand, a significant reduction in the symptoms of patients
- 440 who had not satisfactorily responded to previous treat-
441 ments with anti-obsessional medications was observed.
- 442 This fact is in agreement with the results recently de-
443 scribed by Simpson et al. [29], who showed a reduction in
- 444 OCD symptoms after cognitive-behavioral therapy in pa-
- 445 tients who remained symptomatic even while using medi-
446 cation at appropriate doses and time. Thus the present
- 447 results suggest that CBGT promotes further clinical bene-
448 fits to patients already being treated with drugs, and that
449 it can be added to pharmacotherapy at the beginning or
450 any other point during the treatment. It is possible that
451 the reduction of symptoms achieved by this method
- 452 occurs in a different way from that obtained by medica-
- 453 tion: changes in serotonergic function. Cognitive-behav-
454 ioral therapy acts by correcting faulty learning, rituals and
455 avoidance behavior, thus neutralizing or reducing anxiety
456 associated with obsessions and changing dysfunctional
457 beliefs, all considered to have an important role in the
458 etiopathogenesis, maintenance and relapse prevention of
459 the disorder [19].

460 We observed a reduction in the intensity of overvalued
461 ideas during treatment as well as during the follow-up
- 462 period. The intensity of obsessions was also lower at fol-
463 low-up – this aspect was not addressed in previous studies
464 on CBGT. Although obsessions were considered difficult
465 to treat with ERP techniques, more positive results have
466 recently been reported with individual cognitive therapy
467 [5] than with behavior therapy [30, 31]. Our results show
468 that these improvements also occur with CBGT, and are
- 469 possibly favored by the intensive use of cognitive tech-
470 niques, considered very useful by the patients at the end
- 471 of treatment. In spite of such benefits, cognitive tech-
472 niques are not often used in OCD therapy in the present
473 days.

- 474 Even though our patients presented a significant re-
475 duction in symptoms, from a moderate/severe to a mild/
476 sub-clinical level by the end of treatment, over 50%
477 remained symptomatic. These patients usually did not do
478 their homework exercises due to intense beliefs regarding
479 the danger of doing exposure and response prevention. It
480 is also possible that intense beliefs per se might not have
481 reduced the homework, rather, they could reflect more
482 severe OCD and thus more discomfort during ERP, in
- 483 turn diminishing the amount of homework done. Evi-
484 dence suggests that OCD is a heterogeneous disease, with
- 485 differences in individual biological and psychological sus-

ceptibility in the clinical presentations and in the severity of symptoms. These differences may influence adherence and response to treatment [32]. How to cope with these difficulties remains a challenge in clinical practice and an issue yet to be completely clarified.

Our results showed improvement in the quality of life in the four domains evaluated by WHOQOL-BREF, probably as a consequence of the overall reduction in symptoms achieved with the therapy. As far as we know, our study is one of the first to confirm improved quality of life in OCD patients after CBGT. This aspect must be taken into account when the cost-benefit ratio of this kind of treatment is considered.

Another aspect that must be emphasized is the high level of session attendance observed in our study: only 1 patient dropped out of the treated group (4.3%). Usually, 5–30% of patients refuse to start or do not complete an adequate trial [33], and the estimated drop-out rate for individual ERP therapy in a recent meta-analysis was 16.7% [28]. It is possible that unique therapeutic factors found in group treatment, such as universality by the realization that other people have the same problems, interpersonal learning through observation, experiencing altruism by offering and receiving support, and especially group cohesiveness, increases the patients' motivation to do homework exercises and adhere to treatment [20–22].

Finally, it is important to highlight the cost-effectiveness of CBGT compared with individual psychotherapy, especially in public health care services, since it enables the treatment of a greater number of patients during a short period of time.

In conclusion, our data suggest that CBGT of 12 weekly sessions reduces OCD symptoms and overvalued ideas, maintains an improved quality of life and enables the simultaneous treatment of a greater number of patients, at lower costs. We also suggest that patients who do not respond to anti-obsessional medication in a satisfactory way may get additional benefit from CBGT.

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References

- 1 March JS, Frances A, Carpenter D, et al: The Expert Consensus Guideline Series – Treatment of obsessive-compulsive disorder. *J Clin Psychiatry* 1997;58(suppl 4):13–72.
- 2 Salkovskis PM: Obsessional-compulsive problems: A cognitive-behavioral analysis. *Behav Res Ther* 1985;23:571–583.
- 3 Van Oppen P, Arntz A: Cognitive therapy for obsessive-compulsive disorder. *Behav Res Ther* 1994;32:79–87.
- 4 Freeston MH, Rhéaume J, Ladouceur R: Correcting faulty appraisals of obsessional thoughts. *Behav Res Ther* 1996;34:433–446.
- 5 Freeston MH, Ladouceur R, Gagnon F, Thibodeau N, Rhéaume J, Letarte H, Bujold A: Cognitive-behavioral therapy treatment of obsessive-compulsive thoughts: A controlled study. *J Consult Clin Psychol* 1997;65:405–413.
- 6 Krone KP, Himle JA, Nesse RM: A standardized behavioral group treatment program for obsessive-compulsive disorder: Preliminary outcomes. *Behav Res Ther* 1991;29:627–631.
- 7 Falls-Stewart W, Marks AP, Schafer BA: A comparison of behavioral group therapy and individual behavior therapy in treating obsessive-compulsive disorder. *J Nerv Ment Dis* 1993;181:189–193.
- 8 Van Noppen B, Steketee G, McCorkle MA, Pato M: Group and multifamily behavioral treatment for obsessive-compulsive disorder: a pilot study. *J Anxiety Disord* 1997;11:431–446.
- 9 McLean PD, Whittal ML, Söchting I, Koch WJ, Paterson R, Thordarson DS, Taylor SM, Anderson K: Cognitive versus behavior therapy in the group treatment of obsessive-compulsive disorder. *J Consult Clin Psychol* 2001;69:205–214.
- 10 Lecrubier Y, Weiller E, Hergueta T, Amorim P, Bonora LI, Lépine JP, Sheehan D, Janavs J, Baker R, Sheehan KH, Knapp E, Sheehan M: The Mini International Neuropsychiatric Interview (MINI): The development and validation of a structured diagnostic psychiatric interview (MINI) for DSM-IV and ICD-10. *J Clin Psychiatry* 1998;59(suppl 20):22–33.
- 11 Amorim P: Mini International Neuropsychiatric Interview (MINI): Validation of a short structured diagnostic psychiatric interview. *Rev Bras Psiquiatr* 2000;22:106–115.
- 12 Goodman WK, Price LH, Rasmussen AS, Mazure R, Fleishman R, Hill C, Heninger G, Charney D: The Yale-Brown Obsessive-Compulsive Scale: Development, use, and reliability. *Arch Gen Psychiatry* 1989;46:1006–1016.
- 13 Jenike MA, Baer L, Minichiello WE: *Obsessive-Compulsive Disorders: Theory and Management*, ed 2. Chicago, Year Book, 1990, p 408.
- 14 Hamilton M: The assessment of anxiety states by rating. *Br J Med Psychol* 1959;32:50–55.
- 15 Hamilton M: A rating scale for depression. *J Neurol Neurosurg Psychiatry* 1960;23:56–61.
- 16 Neziroglu FA, Stevens KP, Yaryura-Tobias JA: Overvalued ideas and their impact on treatment outcome. *Rev Bras Psiquiatr* 1999;21:209–216.

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- 622 17 Marks IM, Hodgson R, Rachman S: Treatment
623 of chronic obsessive-compulsive neurosis by in
624 vivo exposure: A two-year follow-up and issues
625 in treatment. *Br J Psychiatry* 1975;127:349-
626 364.
- 627 18 Baer L: *Getting Control – Overcoming Your*
628 *Obsessions and Compulsions*. New York,
629 Plume, 2000.
- 630 19 Salkovskis PM: Understanding and treating
631 obsessive-compulsive disorder. *Behav Res*
632 *Ther* 1999;37:29–52.
- 633 20 Kobak KA, Rock AL, Greist JH: Group behav-
634 ior therapy for obsessive-compulsive disorder.
635 *J Spec Group Work* 1995;20:26–32.
- 636 21 Van Noppen B, Pato M, Marsland R, Rasmus-
637 sen SA: A time-limited behavioral group for
638 treatment of obsessive-compulsive disorder. *J*
639 *Psychother Pract Res* 1998;7:272–280.
- 640 22 Vinogradov S, Yalom I: *A concise guide to*
641 *group psychotherapy*. Washington, American
642 *Psychiatric Press*, 1989.
- 643 23 Cordioli AV, Heldt E, Bochi DB, Margis M, de
644 Sousa MB, Tonello JF, Teruchkin B, Kapczin-
645 ski F: Time-limited cognitive-behavioral group
646 therapy in the treatment of obsessive-compul-
647 sive disorder: An open clinical trial. *Rev Bras*
648 *Psiquiatr* 2002;24:113–120.
- 649 24 Obsessive Compulsive Cognitions Working
650 Group: Cognitive assessment of obsessive-
651 compulsive disorder. *Behav Res Ther* 1997;9:
652 667–681.
- 653 25 Beck AT: *Cognitive Therapy and the Emotion-*
654 *al Disorders*. New York, International Univer-
655 sity Press, 1976.
- 656 26 Van Oppen P, De Haan E, Van Balkon AJLM,
657 Spinhoven P, Hoogduin K, Van Dyck R: Cog-
658 nitive therapy and exposure in vivo in the treat-
659 ment of obsessive-compulsive disorder. *Behav*
660 *Res Ther* 1995;4:379–390.
- 661 27 Clomipramine Collaborative Study Group:
662 Clomipramine in the treatment of obsessive-
663 compulsive disorder. *Arch Gen Psychiatry*
664 1991;48:730–738.
- 665 28 Kobak KA, Greist JH, Jefferson JW, Katzlenik
666 DJ, Henk HJ: Behavior versus pharmaco-
667 logical treatments of obsessive-compulsive
668 disorder. *Psychopharmacology* 1998;136:205–
669 216.
- 670 29 Simpson BH, Gorfinkle KS, Liebowitz MR:
671 Cognitive-behavioral therapy as an adjunct to
672 serotonin reuptake inhibitors in obsessive-
673 compulsive disorder: An open trial. *J Clin Psy-*
674 *chiatry* 1999;60:584–590.
- 675 30 Cottraux J, Note I, Yao SN, Lafont S, Note B,
676 Mollard E, Bouvard M, Sauteraud A, Bour-
677 geois M, Dartigues JF: A randomized con-
678 trolled trial of cognitive therapy versus inten-
679 sive behavior therapy in obsessive-compulsive
680 disorder. *Psychother Psychosom* 2001;70:288–
681 297.
- 682 31 Greist JH, Marks IM, Baer L, Kobak KA, Wen-
683 zel KW, Hirsch J, Mantle JM, Clary C: Behav-
684 ior therapy for obsessive-compulsive disorder
685 guided by a computer or by a clinician com-
686 pared with relaxation as a control. *J Clin Psy-*
687 *chiatry* 2002;63:138–145.

- 32 Mataix-Cols D, Marks IM, Greist JH, Kobak
KA, Baer L: Obsessive-compulsive symptom
dimensions as predictors of compliance with
and response to behavior therapy: Results from
a controlled trial. *Psychother Psychosom* 2002;
71:255–262.
- 33 Marks IM, O'Sullivan G: Drugs and psycholog-
ical treatments for agoraphobia/panic and ob-
sessive-compulsive disorders: a review. *Br J*
Psychiatry 1988;153:650–655.

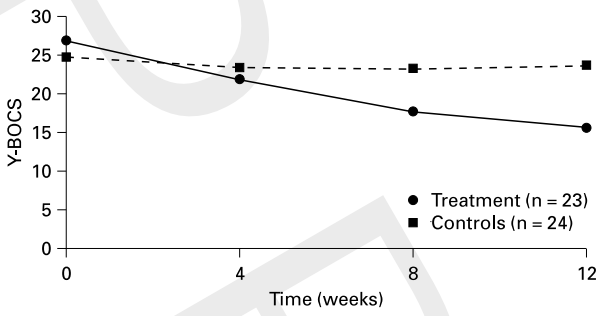


Fig. 1. Y-BOCS mean scores for treated patients and controls during the 12 weeks of treatment.

Table 1. Comparison of treated patients and controls at pre- and post-treatment and 3 month follow-up

	Controls (n = 24)			Therapy group (n = 23)				
	pre	post	p ¹	pre	post	p ¹	3-month follow-up	p ²
Y-BOCS	24.7 (5.2)	23.2 (5.5)	0.070	26.7 (4.9)	15.1 (7.8)	<0.001	12.1 (7.2)	0.039
741 Obsessions	11.7 (4.3)	11.5 (3.2)	0.458	13.1 (2.8)	7.6 (3.2)	0.001	5.9 (4.6)	0.018
742 Compulsions	13.0 (3.2)	12.9 (7.3)	0.916	13.0 (3.1)	7.5 (4.0)	<0.001	6.1 (4.5)	0.061
767 NIMH-OC	8.0 (1.5)	8.0 (1.8)	0.770	8.6 (1.3)	5.2 (2.6)	<0.001	4.6 (3.0)	0.179
776 OVIS	5.3 (15.4)	5.1 (15.3)	0.198	5.6 (13.9)	3.6 (16.8)	<0.001	3.9 (1.2)	0.028
785 WHOQOL-BREF								
786 Physical	52.5 (12.3)	58.9 (16.5)	0.132	48.6 (14.0)	67.5 (12.8)	<0.001	58.3 (12.7)	0.02
787 Psychological	55.4 (15.0)	53.8 (15.7)	0.694	52.5 (12.4)	64.3 (19.1)	0.017	58.5 (18.6)	0.343
788 Social	55.6 (21.9)	57.6 (20.4)	0.756	46.4 (19.1)	61.6 (18.4)	0.018	56.2 (25.4)	0.457
789 Environmental	57.0 (12.4)	54.7 (14.4)	0.507	60.9 (14.5)	69.6 (13.5)	0.040	69.3 (14.7)	0.569

822 Figures in parentheses are standard deviations.

823 ¹ Repeated measures ANOVA: differences between means in pre- and post-treatment scores.

824 ² Paired t test.

Corrections

General

Correction and revision of the proofs should be attended to promptly and with the utmost care. Please refrain from making alterations which are not absolutely necessary. Any charges for changes in the composition resulting from the author's alterations which exceed 10% of the original composition costs will be billed to the author.

Very often, alterations which the author may consider negligible cause heavy expenses, as for instance, if the spelling of a repeatedly used word is subsequently changed (such as 'diarrhoea' to 'diarrhea') or if in the first line of a paragraph one or more words are deleted or added.

Each correction may cause new printing mistakes; for this reason alone it is advisable to confine amendments to the absolute minimum.

Corrections should be indicated in the margin, if possible in red ink.

Proofreader's marks

Whilst the current American or English proofreader's marks are accepted, the following proofreader's marks are recommended for use:

If several corrections have to be made in one line, they must be indicated in the margin in the same sequence as they appear in the line. To avoid confusion, the following signs are used for several consecutive corrections:

⌈ ⌋ ⌈ ⌋ ⌈ ⌋ ⌈ ⌋ ⌈ ⌋ ⌈ ⌋

⌈ ng ⌋ ow

⌈ is ⌋ in the
 ⌈ c. ⌋

⌈ ã ⌋ ã

⌈ ß ⌋ H-ß ⌋ ß ⌋

⌈ ß ⌋ ⌋

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⌈ ⌋ ⌈ ⌋ ⌈ ⌋ ⌈ ⌋ ⌈ ⌋ ⌈ ⌋

Missing letters: Cross out either the preceding or the following letter and repeat it in the margin adding the missing one.

Omission of words and punctuation: The gap indicated by a mark which is repeated in margin followed by the missing word, or comma, period, etc.

Omitted superior or inferior numbers are marked in the margin with the signs ⌈ and ⌋, respectively, e.g.: m₁H₁O₁.

Letters, words or punctuation marks to be omitted are crossed out and the delete sign is put in the margin.
 The signs ⌈ and ⌋ should be used in doubtful cases, e.g., base₁line (one word) and lymph₁node (two words).

⌈ 5 6 7 8 9 10 11 12 13 14 ⌋

⌈ c ⌋ m

⌈ f w ⌋

⌈ b w ⌋

⌈ - ⌋ indicated

1 bold face

2 lower case

3 italics

⌈ } ⌋

⌈ ↑ ⌋

⌈ — ⌋

⌈ — ⌋

⌈ — ⌋

⌈ — ⌋

⌈ — ⌋

⌈ — ⌋

⌈ — ⌋

⌈ A B C ⌋

⌈ α, Greek alpha ⌋

⌈ lower case ⌋

Letters or words to be transposed marked accordingly. If the of several position words altered, is to be they should numbered. ^{1 2 4 5}

Battered characters are crossed out and put in the margin once underlined.

Characters or words set in wrong font are crossed out and written in the margin twice underlined.

Blocked words are crossed out. The missing word is in the margin.

If **another face or size of typeset** is required for words or sentences, **THE** words to be set again are underlined and the preferred set of type is indicated in the margin (**CAPITALS**, **SMALL CAPITALS**, **italics**, **bold face**, lower case).

Missing space is indicated by the sign ⌈ ⌋.

Too much space between letters mark by ⌈ ↑ ⌋.

If there is **too little space between two lines**, please separate them by a line and put the sign ⌈ — ⌋ in the margin.

Too much space between two lines is indicated by a line between them and the sign ⌈ — ⌋ in the margin.

If a **new paragraph** is required, the sign ⌈ ⌋ is to be inserted preceding the first word of the paragraph.

If **no paragraph** is wanted, this is indicated by the sign ⌈ — ⌋ combining the incorrectly indented line with the end of the preceding one.

Wrong indentation and words standing too far to the right are marked by ⌈ — ⌋.

If **indentation** is wanted or a word is too far to the left, this is indicated by the sign ⌈ — ⌋.

Corrections made in error and not to be carried out by the printer are marked by dots below the wrong correction sign. If a correction has already been indicated in the margin, this has to be crossed out.

Notes to the printer should be put in double brackets. Example: α-globulin.