

Personality and Social Sciences

The efficacy of teaching psychology students exposure and response prevention for obsessive-compulsive disorder

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The aim of the study was to investigate whether inexperienced student therapists could successfully learn exposure and response prevention for obsessive-compulsive disorder. Twenty out of 21 outpatients completed treatment as delivered by ten psychology students. A total of 60 hours group supervision and approximately 30 hours with individual supervision was given to the students over the course of three semesters. Large effect sizes were observed for measures of symptoms and depression. Sixty-two percent ($N = 13$) of the intent to treat group achieved clinical significant change and 81% no longer met the diagnosis criteria ($N = 17$). The treatment effects observed at the 6 month follow-up period were promising. The results are encouraging for training students in evidence based treatment for specific disorders.

Key words: Obsessive-compulsive disorder, supervision, outcome.

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INTRODUCTION

Despite the impressive progress of cognitive behavior therapy, there are few studies on the training needed to be effective. Research so far has been unclear as to the therapists' contribution to psychotherapy outcome. Barlow and colleagues (1999) with reference to the findings of Crits-Christoph and colleagues (1995) pointed out the need for improvement at clinical psychology training programs in teaching data-based treatments. Recent developments in psychotherapy training, however, have been described as increasing the use of manualized therapy and evaluations of competence (Ravitz & Silver, 2004). Many controlled trials use highly trained therapists (Wilson, 1995) making it difficult to generalize to normal clinical practice. Psychology students provide an interesting alternative group to compare with therapists who agree with the model and are extensively trained. University clinics also provide an excellent basis for researching the dissemination aspects of evidence-based treatments (Barlow, Levitt & Bufka, 1999).

Small sample research without statistical testing so far in Norway have concluded that student therapies are helpful but seem less efficient than therapy given by experienced therapists (Håland, 1986) and that student therapies seem ethically justifiable (Gullestad, 1986). To the best of our knowledge, there has not been a previous investigation of training student therapists in exposure and response prevention for obsessive-compulsive disorder, a treatment which has repeatedly been documented as efficient (Fisher & Wells, 2005). It's important to demonstrate the feasibility of training psychology students in

this therapy due to the large prevalence of the disorder and the cost-efficiency of psychological treatment.

It is important to research the effect of student therapies in order to document the effect of the supervision and therapies given. Ongoing supervision is thought to be essential for minimizing the likelihood that the therapist will drift away from the set standards (Liese & Beck, 1997), but little has been written about cognitive therapy supervision (Perris, 1994) and research on the relative merits of different teaching methods has been described to be in its infancy (Padesky, 1996). However, Strosahl, Hayes, Bergan and Romano (1998) found indications for better outcome among those who received supervision compared to therapists at the same agency not given training.

The most common type of empirical study of supervision involves surveys of student satisfaction. However, a few researchers have published therapy outcomes using student therapists. Lappalainen *et al.* (2007) achieved effect sizes of 1.1 and 0.4 on the Symptom Checklist-90 (SCL-90) using Acceptance and Commitment Therapy and Cognitive Behavior Therapy for a general outpatient group. Ryum, Stiles and Vogel (2007) presented effect sizes from 117 student therapies at our university clinic. Effect size for treatment of anxiety disorders ($N = 45$) was 0.61 when using the SCL-90. Only six of these had a primary obsessive-compulsive diagnosis and their OCD-SCL-90 effect size was 0.58 (pretreatment $M = 2.03$, $SD = 1.4$, post-treatment $M = 1.25$, $SD = 1.23$). Reporting effect sizes from student therapies at different university clinics allows for comparisons and could serve as indicators for improvement.

Effect size when using professional therapists and measures designed for obsessive-compulsive disorder such as the Obsessive-Compulsive Inventory-Revised (OCI-R; Foa *et al.*, 2002) has been reported to be 1.4 (Abramowitz, Tolin & Diefenbach, 2005) and 50–60% of the patients seem to achieve clinical significant change following exposure and response prevention treatment as assessed with the Yale-Brown Obsessive Compulsive Scale (Y-BOCS; Fisher & Wells, 2005). The best test of whether students actually can learn therapy through the use of a manuals and group supervision is whether they get results resembling these studies. This approach, similar to actual treatment research, but mainly focusing on students' ability to deliver a specific psychotherapy method may contribute to our knowledge of improving student training. Positive findings may help further dissemination of treatment as well as increase the students' self-efficacy as therapists and increase their interest in psychological research.

Research on dissemination needs to examine how effective the treatments are when delivered by therapists with different backgrounds in order to demonstrate the effects of clinical training. The aim of this paper is therefore to investigate the effectiveness of teaching exposure and response prevention treatment for obsessive-compulsive disorder to a group of inexperienced psychology students participating in an open trial. Our research aims were to compare the efficiency of these therapies compared to the efficiency of other student therapies, and compared to experienced professionals.

METHOD

The study is an open trial using a within group design. In cases of missing values, calculations were performed to get an average item response on the basis of their subscale score. All statistical analyses were calculated using SPSS 14.0 for Windows. Effect sizes were calculated using the following formula: Mean pretreatment – Mean posttreatment/*SD* pretreatment.

Student therapists and supervision

The therapists consisted of five women and five men with a mean age of 22.37 (*SD* = 1.41) when starting supervision. After completing one successful semester with the four students, we included the remaining students who still wanted to participate.

The students had been studying psychology for three semesters and none of them had previous clinical experience. They were enrolled in a 5-year long education program in order to become clinical psychologists (comparable to advanced graduate students in other countries' educational systems). In order to be enrolled in this program the students need one year with an introductory psychology course teaching the basics of psychology including methodology and history of psychology as well as one semester with an introductory philosophy course. The clinical program is quite popular and conceived of as difficult to be admitted in, as the university accepts only 24 new students each semester, while the introductory classes have approximately 500–1,000 students.

Before starting treatment the students were given a didactic introduction to the treatment of obsessive-compulsive disorder. Training was based on a commonly used treatment manual for obsessive-compulsive disorder (Kozak & Foa, 1997). The group was introduced to general therapy

skills, writing psychological journal notes, use of questionnaires, and ethical issues.

The students attended two hours weekly group supervision. The main content of the supervision involved the students presenting their case, discussion of a certain relevant topic (i.e. insight, disgust, prolonged exposure etc.), and showing video recordings of the treatment. In this way they gained experience from other student therapists as well as from four supervisors who took turns in participating with the group.

The four supervisors were all male and had some background from treatment and research on obsessive-compulsive disorder. Two of the supervisors had previously designed and conducted randomized controlled trials for obsessive-compulsive disorder including use of the same manual as used in our study, one had written a book on obsessive-compulsive disorder and the fourth was a PhD candidate researching treatment of obsessive-compulsive disorder. Approximately ten group supervision meetings were held each semester totaling 60 hours over the course of three semesters. In addition to the group supervision the students received approximately 30 hours with individual supervision. One student treated four patients (although one of these dropped out after the third session), another student treated three patients, while six students treated two patients each, and two students delivered one treatment each.

In order to describe the style of the supervision we applied the supervision styles inventory trainee version (SSI-T) (Friedlander & Ward, 1984). The SSI-T is a 33-item self-report scale that assesses perceptions concerning the style of supervision. Supervisors are rated on 33 adjectives using a Likert scale ranging from 1 (not very) to 7 (very). The scale comprises three subscales: Attractive style (e.g. friendly, supportive), Interpersonally Sensitive style (intuitive, invested), and Task Oriented style (structured, evaluative). The students answered the SSI-T anonymously. The Cronbach alphas were 0.95 for Attractive, 0.92 for interpersonally sensitive and 0.95 for task orientation. The students' perception of the supervision as measured with the supervision styles inventory trainee version indicated high presence of Attractive style ($M = 6.1$, $SD = 0.8$) and Interpersonally Sensitive style ($M = 6.0$, $SD = 0.9$), and to a somewhat lesser extent Task Oriented ($M = 5.0$, $SD = 1.2$).

Patients

Forty-three patients were referred. Most of the referrals were from general practitioners and other psychiatric outpatient clinics. Two patients in the final sample referred themselves after being informed about the project on a webpage for the Norwegian OCD foundation. The patients were consecutively recruited and randomly assigned to a student therapist. The main criteria for inclusion involved having a dominant obsessive-compulsive disorder diagnosis according to the DSM-IV. The main criteria for exclusion from the study were if patients met criteria for psychotic disorders, alcohol- or drug addiction, mental retardation, autism, and if they showed suicidal behaviors. Twenty-two patients were not included due to different reasons: did not meet for assessment ($N = 5$), mental retardation and/or autism ($N = 3$), primary generalized anxiety disorder ($N = 4$), psychosis ($N = 3$), primary depressive disorder ($N = 1$), no diagnosis at all ($N = 1$), primary PTSD ($N = 1$), primary bipolar disorder ($N = 1$), primary anorexia ($N = 1$), primary specific phobia ($N = 1$), and one person decided to try self-help instead. Diagnostic interviews with the Anxiety Disorder Interview Schedule (ADIS-IV; Brown, DiNardo & Barlow, 1994) and the clinical interview for DSM-IV axis II Personality (First, Spitzer, Gibbon, Janet, Williams & Benjamin, 1994) were completed before treatment. The first and second author performed the interviews. After treatment the patients met again with the diagnostic assessor for a post-treatment interview.

The final sample consisted of 21 outpatients with a primary obsessive-compulsive disorder diagnosis. All but one patient had previously attended professional psychological treatment and four had previous inpatient stays. One patient dropped out of treatment after the third

Table 1. A summary of the patients' ($N = 21$) diagnostic- and demographic characteristics

Demographics	N (%) / M (SD)
Female gender	13 (62%)
Currently working/studying	13 (62%)
Using SSRI/SNRI	10 (48%)
<i>OCD subtype</i>	
Washing	5 (24%)
Checking	4 (19%)
Covert Rituals/symmetry	6 (29%)
Hoarding	1 (5%)
Washing and Checking	5 (24%)
<i>Comorbid Axis I disorders</i>	
Agoraphobia	1 (5%)
Social Phobia	4 (19%)
Generalized Anxiety Disorder	5 (24%)
Post Traumatic Stress Disorder	1 (5%)
Major Depression	6 (29%)
Dysthymia	3 (14%)
<i>Axis II disorders</i>	
Avoidant	4 (19%)
Dependent	1 (5%)
Obsessive Compulsive	2 (10%)
Passive-Aggressive	1 (5%)
Depressive	2 (10%)
Schizotyp	1 (5%)

session leaving a total of 20 treatment completers. The reason for dropout was reported to be dissatisfaction with the first session with exposure ("it was too much") in which the patient was exposed to contaminants.

The total sample had a mean age of 33.0 ($SD = 15.2$). Thirteen were of female gender and 9 were married or cohabitants. Thirteen were currently working or studying. Ten of the patients used medication (SSRI/SNRI). All but one had an adequate clinical dosage. Patients were asked to not change their dosage during treatment, but one reduced the dosage of SSRI during the treatment. A description of the sample's main obsessive-compulsive subtype and comorbid disorders as well as treatment and supervision characteristics is summarized in Table 1. Seven of the 20 treatment completers had OCD as their only axis I diagnosis, while nine had one comorbid diagnosis. Three patients had two additional diagnoses and one patient had three comorbid disorders. In regards to axis II, 14 patients had no diagnosis, four had one axis II disorder, one had two, while one patient qualified for five disorders.

Three of the patients were referred for further treatment after finishing treatment at our clinic due to their comorbid disorders (one due to depression and two due to generalized anxiety disorder), these were therefore excluded from the follow-up analyses. Their pre-posttreatment results on obsessive-compulsive symptoms on the OCI-R were 41 to 12, 32 to 17 and 15 to 12.

Treatment

The treatment took place at a university outpatient clinic. Treatment was based on a commonly used treatment manual for obsessive-compulsive disorder (Kozak & Foa, 1997). This specific manual was chosen due to the supervisors being very familiar with it from previous trials (e.g. Vogel, Stiles & Götestam, 2004) as well as its repeatedly documented treatment effects even in standard clinical practice (Franklin, Abramowitz, Kozak, Levitt & Foa, 2000). The main ingredients of the therapy were for the first session to formulate a case-conceptualization, presenting a

habituation rationale, and self-registration of rituals for homework. Session 2 involved creating the exposure hierarchy and introducing the rules for ritual prevention. The following sessions were similar in structure and consisted mainly of checking homework assignments, 60 minutes with in vivo and imaginary exposure delivered in a sequence specified by the hierarchy (reaching the top of the hierarchy after six sessions with exposure), agreeing on homework assignments. Focus turned to relapse prevention when treatment was approaching termination. The mean number of sessions for the twenty treatment completers was 16.95 ($SD = 4.15$).

Adherence to the manual used in this study is rarely reported. Our study did not have an adequate adherence measure. However, our study did have weekly supervision and the therapists reported the extent to which they used in-session and between-session exposure. The average number of sessions was 17.0 ($SD = 4.2$). Average minutes of exposure per session was 53.8 ($SD = 11.4$) and the average number of total homework assignments given were 46.8 ($SD = 25.1$). These measures were comparable to one previous trial using the same manual and professional therapists (Vogel *et al.*, 2004). The number of sessions was not correlated with outcome as measured by OCI-R post and changes in pre to post scores on this measure. Number of homework assignments completed was significantly correlated with change in OCI-R ($r = 0.54$, $p = 0.02$), and minutes of exposure during the session was correlated with symptoms on the OCI-R at post-treatment ($r = 0.52$, $p = 0.02$).

Assessments after the third session using the Working Alliance Inventory-Short (Tracey & Kokotovic, 1989), a well-known 12 item instrument using a 1–7 scale, indicated strong working alliances. The total mean was 6.1 ($SD = 0.6$), and the subscales agreeing on tasks 6.1 ($SD = 0.6$), agreeing on goals 6.4 ($SD = 0.6$), and bond 5.9 ($SD = 0.8$). The alliance was correlated with number of homework assignments completed ($r = 0.48$, $p = 0.04$). Cronbach alphas for the total score was 0.87, while the subscales were less reliable (Task = 0.68; Goal = 0.53, and Bond = 0.78). In comparison the previously described study from our university clinic (Ryum *et al.*, 2007) used the same measure and time of assessment and found a total alliance score for the six patients diagnosed with obsessive-compulsive disorder to be 5.2 (1.0), and for the other 39 patients with anxiety disorder 5.2 (0.7).

The patients' perception of the treatment expectancy and credibility was assessed with two items based on an adaptation of Borkovec and Nau (1972) using a 0–100 scale instead of the original 0–10 scale. The scale was administered at the end of the first treatment session. The expectancy items asked how successful they felt the treatment would be in decreasing their fear, and if they would be willing to undergo the treatment. The credibility items asked how logical they perceived the treatment, and how much they would recommend it to a friend with similar problems. The mean expectancy score of 80.5 (11.0) indicated that the patients had quite high hopes concerning completing the treatment and experiencing less obsessive-compulsive symptoms. The mean credibility score was 89.6 (8.8) indicating that the patients perceived the treatment as highly credible.

Measures

The measures described below were administered before entering treatment, after treatment, and at follow-up which was administered by mail. The measures were chosen in order to allow comparisons and the fact that they are based on previous research and theory documenting their importance in obsessive-compulsive disorder.

Obsessive Compulsive Inventory Revised (OCI-R; Foa *et al.*, 2002). The self report measure OCI-R was given as a measure of symptom severity. Eighteen items are rated on a 0–4 scale. Foa *et al.* (2002) reported good internal consistency and test-retest reliability in clinical groups with obsessive-compulsive disorder and other anxiety disorders in addition to a non-clinical sample. In terms of validity, the total score

showed moderate to strong correlations with other global measures of obsessive-compulsive disorder and measures of depression.

The OCI-R seems to be a psychometrically sound self-report measure (e.g. Abramowitz & Deacon, 2006; Hajcak, Huppert, Simons & Foa, 2004). Abramowitz, Tolin and Diefenbach (2005) concluded that OCI-R is sensitive to change and suitable for use in clinical settings. Cronbach's alpha for the different subscales at pretreatment were as follows: washing 0.86, obsessions 0.73, hoarding 0.93, ordering 0.91, checking 0.87, and neutralizing 0.57.

The Beck Depression Inventory (BDI; Beck, Rush, Shaw & Emery, 1979). The BDI is a 21-item self-report inventory, which has been shown to be a reliable and valid measure of syndrome depression severity in both clinical and non-clinical populations (Beck, Steer & Garbin, 1988). The Cronbach alpha in the present study was 0.85 at pretreatment.

RESULTS

Diagnostic assessments

The diagnostic interviews using the clinical severity scale of ADIS-IV for the diagnosis indicated that a total of 17 of the 20 treatment completers no longer met the criteria for an obsessive-compulsive disorder diagnosis. Two participants were classified as having no symptoms at all, four had few symptoms, five had mild symptoms and six had subclinical obsessive-compulsive disorder. These results using the clinical severity scale from the diagnostic interview are summarized in Table 2. At pretreatment the group's clinical severity rating for the OCD diagnosis had a mean of 5.6 ($SD = 0.8$) and at post-treatment the mean had decreased to 2.3 ($SD = 1.4$). Using the 0–8 severity scale the effect size was 2.9 for the treatment completers.

Changes on self-report measures

Table 3 shows the means and standard deviations at pre and post-treatment as well as their effect sizes for the 20 treatment completers. The results indicated a positive response to the treatment as measured by OCI-R total score. The mean post-treatment score of 12.1 ($SD = 8.5$) is comparable to our unpublished

Table 2. Clinical severity ratings indicating improvements from pre- to post-treatment in N (%)

Clinical severity scale		Pretreatment (N = 20)	Post-treatment (N = 20)
0	None	0	2 (10%)
1		0	4 (20%)
2	Slightly disturbing/not really disturbing	0	5 (25%)
3		0	6 (30%)
4	Definitely disturbing/disabling	2 (10%)	1 (5%)
5		5 (25%)	2 (10%)
6	Markedly disturbing/disabling	12 (60%)	0
7		1 (5%)	0
8	Very severely disturbing/disabling	0	0

Note: One patient dropped out of treatment and is not included in the table.

results on the OCI-R using student controls as measured at our university ($M = 13.7$, $SD = 14.0$) and to other international studies using the OCI-R on non-clinical populations. The OCI-R subscales that indicated the poorest treatment response were washing and hoarding. The post-treatment results for the BDI ($M = 8.6$, $SD = 8.7$) are classified as minimal depressive symptoms (Beck *et al.*, 1988). The effect sizes obtained on the BDI and the OCI-R were very comparable to the results obtained by Abramowitz *et al.* (2005) using the same measures and basically the same treatment.

Follow-up analysis

Table 3 also shows the means and standard deviations and effect sizes for the 13 participants who responded to the follow-up questionnaire package. No differences were found at pre- and post-treatment between those who did not respond ($N = 7$) to our

Table 3. Means, standard deviations and effect sizes for the 20 treatment completers, and effect sizes for the 13 patients responding to 6 month follow-up

Measure	Range	M	SD	M	SD	ES Pre-Post (N = 20)	ES Pre-Post (N = 13)	ES Pre-F-U (N = 13)
<i>OCD symptoms</i>								
OCI-R total	0–72	30.6	9.4	12.1	8.5	1.97	2.07	2.17
Washing	0–12	4.7	4.3	2.0	2.5	0.63	0.50	0.54
Obsessions	0–12	8.5	2.5	3.7	2.9	1.92	2.45	2.65
Hoarding	0–12	2.2	2.7	1.4	2.6	0.30	0.09	0.26
Ordering	0–12	5.2	4.2	1.9	2.2	0.79	0.66	0.66
Checking	0–12	6.3	3.8	2.3	2.0	1.05	1.27	1.30
Neutralizing	0–12	3.8	3.1	1.0	1.6	0.90	0.88	0.91
<i>Depression</i>								
BDI	0–63	14.6	7.9	8.6	8.7	0.76	0.92	1.02

Note: OCI-R = Obsessive Compulsive Inventory – Revised, BDI = Beck Depression Inventory.

follow-up questionnaires and the 13 that did respond. Variables checked were the obsessive-compulsive symptom variables, measure of depression, and demographic variables. The follow-up results were positive, indicating little evidence of relapse.

Clinical significant change analyses

Using non-clinical data from Foa *et al.* (2002) for the OCI-R we performed an analysis to check for clinical significant change (Jacobsen & Truax, 1991). Test-retest values were reported as 0.84, while mean and standard deviation for non-anxious controls were 18.8 (11.1). This indicated a need for a change of 12 points in order to obtain reliable change, and we used the same cut-off score as Abramowitz *et al.* (2005) of 21 in order to achieve endstate functioning within the normal population range. Using these criteria 65% (13 of 20) of the treatment completers achieved clinical significant change at post-treatment, and 84.6% at follow up (11 of 13). For a critique of how to conduct clinical significant change analyses please see Lambert, Hansen and Bauer (2008).

DISCUSSION

The main goal of our study was to explore whether inexperienced psychology students could successfully learn to treat obsessive-compulsive disorder using exposure therapy. The effect sizes found were large as measured with a diagnostic interview and the OCI-R. Our results indicated that 65% of the treatment completers achieved clinical significant change at post-treatment and the results at follow-up were encouraging. In comparison a review of exposure and response prevention treatment for obsessive-compulsive disorder (Fisher & Wells, 2005) showed that clinical significant change is achieved in 50–60% of the cases as assessed with the Yale-Brown Obsessive Compulsive Scale. The treatment was conceived of as credible and strong working alliances were achieved. A moderate effect size was observed for changes in depressive symptoms.

When comparing our results to other researchers using the same outcome measures and patient group the results seem quite comparable. An effect size of 1.4 was found in a related study (Abramowitz *et al.*, 2005) when using the same treatment as our study and therapists with more experience (although 14% received bibliotherapy). In comparison our effect size obtained was 2.1. Bibliotherapy could be less efficient than face-to-face therapy and they did not specify the number of sessions and the intensity of treatment differed.

The sample seemed comparable to a typical American obsessive-compulsive disorder sample in regards to demographic and diagnostic characteristics as described by Steketee, Chambless and Tran (2001). In addition 20 of the 21 had previously attended psychological therapy given by a professional health care employee, although not many had previously completed exposure therapy.

Possible therapist effects could exist, but these differences are difficult to compare due to the small sample. However, eight of

the ten students participating all had treatments with a mean OCI-R change score of 14 or more.

The fact that the students are introduced to manuals early in their career, may make them more open for using these (Backer, Liberman & Kuehnel, 1986). Differences that have previously been demonstrated in trainees' results may be due to the trainer's teaching style (Henry, Schacht, Strupp, Butler & Binder, 1993). This effect may have been reduced in our study by having the students participating in group supervision and meeting four supervisors.

A possible explanation for the good results achieved may be due to the treatment being efficient (as documented by the exposure-outcome relationship). Devoting a large proportion of the session to exposure and giving several homework assignments were correlated with improvement. The manual seems easy to learn and the students may have experienced a rapid learning curve due to the specialized group supervision. Due to different limitations of this study several questions remain unanswered. The study has a small sample size, lacks randomization to a control group, as well as the fact that our two diagnostic assessors also supervised the students. The double-role of our assessor may have biased the diagnostic assessment at post-treatment. However, the use of self-report measures supplements these results. There is always the possibility of a self-report bias, for example in pleasing behavior. However, the follow-up only involved responding to questionnaires by mail, reducing the impact of meeting face-to-face with the assessor. The patients could be more compliant or open minded (possibly psychologically minded) since they accept student therapists. Finally, five patients did not meet for follow-up assessment, leaving the results from follow-up analysis difficult to interpret.

One of the unanswered questions is whether ongoing group supervision is essential due to the lack of a control group. Little is known concerning how much training and supervision is needed to achieve certain levels of efficiency. The students used in our study could also be an unrepresentative group. However, they represented half of their class, indicating that they are probably not that different from other students enrolled in the same program. Our study is unable to answer whether these students will be better therapists in the future compared to their classmates who did not receive this training. It would also be over-interpreting the results claiming that students should learn a manualized treatment. Manuals may be easily taught, but this is not the same as documenting that this is the way to get better therapists.

Future research should investigate whether similar results could be achieved using other inexperienced therapist and other patient groups. The results of this trial are promising for producing similar results in other clinics since these results indicate that background or competence may be less decisive. University clinics have clear advantages for conducting such research on the role of different teaching techniques. The manual seems powerful and easy to learn, but the students' enthusiasm and willingness to learn may be important ingredients. Receiving positive feedback from supervisors and discussing

related problems with fellow students who are treating the same disorder may all be contributing to the good results.

The teachability of exposure and response prevention achieved in our study justifies investigating whether these results are replicable in other university clinics as well as other professional clinics. We consider it a positive finding for patients, practitioners, and clinical researchers that relatively inexperienced students can learn efficient treatment quickly. The main conclusion from this trial is that students are able to apply exposure and response prevention treatment successfully to OCD outpatients when given appropriate supervision.

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