Concentrated ERP delivered in a group setting: A replication study.

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**Abstract**

**Background:** In a previous effectiveness study (Havnen, Hansen, Öst, & Kvale, 2014), 35 OCD patients underwent Concentrated Exposure Treatment (cET), which is a newly developed group treatment format delivered over four consecutive days.

**Aims:** The primary aims of the present study were to evaluate the treatment results for a new sample of OCD patients receiving the cET treatment approach and to replicate the effectiveness study described in Havnen et al. (2014).

**Method:** Forty-two OCD patients underwent cET treatment. Treatment was delivered by different therapists than in Havnen et al. (2014), except for two groups led by the developers of the treatment. Assessments of OCD symptom severity, treatment satisfaction, and occupational impairment were included.

**Results:** The results showed a significant reduction in Y-BOCS scores from pre-treatment to post-treatment, which was maintained at 6-month follow-up. At post-treatment 74% of the sample was remitted, at 6-month follow-up 60% were recovered. The sample showed a very high degree of overall treatment satisfaction. The results from the present study were statistically compared to those obtained in the previous study. The analyses showed that the study samples had comparable demographic data and equal application of treatment. The outcome of the present and original study did not differ significantly on primary and secondary outcome measures.

**Conclusions:** This study shows that cET was successfully replicated in a new patient sample treated by different therapists than the original study. The results indicate that cET is well-accepted by the patients, and the potential for dissemination is discussed.

*Key-words*: OCD; ERP; Group therapy; Replication study

**Introduction**

It is well documented that cognitive behavioral therapy (CBT), either as exposure and response prevention (ERP) or the combination of ERP and cognitive therapy, is effective for obsessive-compulsive disorder. It is recommended in the NICE clinical guidelines (National Collaborating Centre for Mental Health, 2006), and several meta-analyses have demonstrated its effectiveness and efficacy (e.g. Abramowitz, 1998; Öst, Havnen, Hansen, & Kvale, 2015; Rosa-Alcázar, Sánchez-Meca, Gómez-Conesa, & Marín-Martínez, 2008). The treatment has been shown to be adaptable across a range of different treatment formats, e.g. individual treatment (Foa, Liebowitz, Kozak, Davies, & Campeas, 2005), group treatment (McLean et al., 2001), family treatment (Grunes, Neziroglu, & McKay, 2001) and teleconference treatment (Vogel et al., 2014) with comparable outcomes (Öst et al., 2015).

A recent meta-analysis (Öst et al., 2015) of CBT for OCD compared proportions of response (various percent reductions of pre-treatment symptom score) and clinically significant change (CSC; according to the Jacobson and Truax [1991] criteria). In the included studies, the response rate was 62-68% and proportion of CSC was 43-52%. In a recently published effectiveness study (Havnen, Hansen, Öst, & Kvale, 2014), we have demonstrated that a novel format of ERP, developed by the second and the fourth author, yields highly encouraging results. The individually tailored and therapist assisted treatment is delivered in a group setting during four consecutive days, where the ratio between therapists and patients is 1:1. The concentrated exposure treatment (cET) is highly accepted by the patients and there are practically no drop-outs. In Havnen et al. (2014) 11 % were improved and 77 % recovered, applying the Jacobson and Truax (1991) criteria, and the comparable figures at six months follow up were 14 % and 74 %. The cET thus seems to give a substantially higher proportion of remitted patients compared to what is reported in the Öst et al. (2015) meta-analysis. Furthermore the cET yielded significant improvement in depressive symptoms and positive changes in occupational interference, which were maintained at 6 months follow-up.

The treatment in Havnen et al. (2014) was delivered at an outpatient clinic in the general national health services, has high ecological validity, and has potential for dissemination. The cET also contains several components which previous research has shown to be of importance for the treatment outcome. The treatment is delivered individually in a group setting, and group processes have been suggested to potentially increase treatment adherence and compliance (e.g. Van Noppen, Pato, Marsland, & Rasmussen, 1998). Two full days of exposure allows for prolonged exposure, which is demonstrably effective in other anxiety disorders (Davis III, Ollendick, & Öst, 2012), and the 1:1 patient-therapist ratio allows for flexible exposure training in a variety of different contexts which may promote fear unlearning (Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014). All exposure is therapist-assisted, which is provably superior to unassisted exposure (Abramowitz, 1996).

Replication is necessary to ascertain the validity of the previous study on cET. Interestingly, replications are rarely seen in psychological research, and when they are performed, the results are rather discouraging. A recent meta-analysis (Open Science Collaboration, 2015) of 100 replication studies in psychology found that only 36 % of the studies replicated the results of the original studies, and the mean effect size decreased from 0.40 to 0.20.

The present study is an example of a systematic replication (Barlow, Nock, & Hersen, 2009) in which disorder, treatment protocol, and setting remains the same as in the original study (Havnen et al., 2014), but therapists differ. To enable a direct comparison with the therapists in the former study, the originators treated a small portion of the patients in the current study, whereas the remaining therapists did not overlap between the studies. The overall degree of therapist overlap was thus very low. The primary aims of the present study were to evaluate the treatment results for a sample of patients receiving the cET treatment approach for OCD and to replicate the effectiveness study described in Havnen et al. (2014). It is also of importance to evaluate if a consecutive patient sample from the same clinic shows comparable treatment results.

**Method**

*Participants*

A total of 131 patients were referred to the clinic on suspicion of OCD in the time period February 2013 to July 2014, of whom 79 patients met criteria for OCD (Figure 1). Patients were offered group treatment when slots were available, and when unavailable they were offered individual treatment. Waiting-list was not an option as treatment was delivered at a routine clinic and the patients were entitled to care within three months after referral. Thirty-seven patients underwent individual treatment due to no available group slot (n=32), language difficulties (n=1) or other comorbidity requiring additional attention (n=4). Forty-two eligible patients accepted the offer of the concentrated group ERP treatment format and none refused participation. The sample consisted of 28 (67 %) females and had a mean age of 32.6 years (*SD* = 10.8).

*Referral procedures and diagnostics*

Patients were referred by their general practitioner to the local district psychiatric facility and secondary referred to the OCD team if a diagnosis of OCD was suspected. Following the administration of the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998), referred patients were offered treatment by the OCD-team if the DSM-IV (American Psychiatric Association, 2000) diagnostic criteria for OCD diagnosis were met. There were no formal exclusion criteria for treatment participation. However, patients with a comorbid condition requiring additional attention (e.g. psychosis or Asperger’s syndrome), or patients with lack of Norwegian language abilities, were not offered group treatment. These patients (*n*=37) were offered individual treatment instead.

No power calculation was done before the start of the study, but we included all patients that were treated during a certain time period. The comparison between the replication sample and the original sample on Y-BOCS yielded an effect size, *d* of 0.41, and a power of 55%. With this *d*-value it would have required 95 patients per sample to have 80% power to find a significant difference.

Pre-treatment Y-BOCS interviews were performed by a clinical psychologist at the OCD-team, whereas the Y-BOCS interviews at post-treatment and six months follow-up were performed by an independent psychologist. This independent rater was informed that the patients had participated in cET, but was not otherwise involved in the study. All clinician administered Y-BOCS interviews were conducted by clinical psychologists trained in the procedure.

*Procedure*

Referred patients were seen by a clinician for an initial interview in which the MINI was administered for a diagnostic screening of OCD and comorbid disorders, and anamnestic information was gathered. If a diagnosis of OCD was confirmed the patients were seen for two further screening sessions. The patients’ obsessive and compulsive symptoms were recorded and the severity of symptoms were assessed with the clinician administered Y-BOCS. Patients were offered psycho-education about the maintaining factors of OCD as well as about the treatment (Havnen et al., 2014).

Prior to the initial assessment session, patients were mailed self-report questionnaires to be completed before the first appointment. Post-treatment and 6 months follow-up self-report questionnaires were completed and returned in pre-paid envelopes.

All information was gathered as part of the standard systematic effectiveness assessment procedure at the clinic.

*Measures*

Severity of obsessions and compulsions was assessed with the clinician administered *Yale-Brown Obsessive-Compulsive Scale* (Y-BOCS; Goodman, Price, Rasmussen, Mazure, et al., 1989a). The Y-BOCS has 10 items and a scoring range of 0-40. A Y-BOCS score of 0-7 is considered subclinical, 8-15 mild, 16-23 moderate, 24-31 severe and 32-40 extreme (Marques et al., 2010).The Y-BOCS is sensitive to change after treatment and has demonstrated good psychometric properties (Goodman et al., 1989b).

Patient satisfaction with health services was assessed with the *Client Satisfaction Questionnaire 8* (CSQ-8; Larsen, Attkisson, Hargreaves, & Nguyen, 1979). The CSQ-8 has 8 items which are rated on a 1 (low satisfaction) to 4 (high satisfaction) scale with a total score of 8-32; higher values indicate higher satisfaction. The psychometric properties of the CSQ-8 are good (Larsen et al., 1979; Nguyen, Attkisson, & Stegner, 1983).

To assess employment situation at pretreatment, the *Work and social adjustment scale* (WSAS; Mundt, Marks, Shear, & Greist, 2002) was applied. The WSAS has five items which are rated on a 0-8 scale, with 0 indicating not at all impaired and 8 indicating severely impaired. The WSAS has good psychometric properties (Mundt et al., 2002). The employment statusat follow-up was recorded by having the patient rate the job situation according on the following question: *How has your job or study situation changed following treatment?* Patients replied on a 1-5 Likert scale (1 = Highly negative influence, 2 = Negative influence, 3 = No change, 4 = Positive influence, and 5 = Highly positive influence). All measures were part of a standard battery of instruments at the OCD clinic, Haukeland University Hospital.

*Therapists*

A total of six clinical psychologists delivered the treatment. The therapist leading the group sessions was an experienced psychologist with more than 15 years of experience with cognitive behavioral therapy, the remaining five clinical psychologists had less than 1 year of clinical experience. They had limited experience with ERP treatment and were undergoing a national training program to become certified OCD therapists. As an integrated part of the training in the cET, less experienced therapists observed and took part in treatment sessions led by the experienced therapists, and got direct feedback on their performance[[1]](#footnote-1). In each of the ten treatment groups there was a 1:1 therapist-patient ratio. One group had six participants, two groups had five, five groups had four, and two groups had three participants. Two of the ten groups were run by the developers of the cET (BH and GK) and the remaining eight groups were led by another therapist with extensive experience with CBT. In these groups the more unexperienced therapists delivered the treatment and BH and GK were available on request for consultation, but did not participate actively otherwise.

In Havnen et al. (2014), all treatment groups were led by the developers of the concentrated ERP format (GK and BH) and there were six therapists, in addition to GK and BH. A comparison of the therapists in the present study and those in Havnen et al. (2014), showed that there was an overlap of 4.8 % and this was accounted for by the two groups led by the developers, whereas for the remaining therapists, there was no overlap in the present study and Havnent et al. (2014). The treatment protocol which the therapists adhered to was identical in the present study and Havnen et al. (2014), but treatment integrity was not systematically monitored.

*Treatment*

The patients received the concentrated exposure treatment (cET; Havnen et al., 2014), conducted in four consecutive days. Day 1 is a 3-hour group session covering psychoeducation and planning of the exposures, day 2 and 3 are full days of therapist assisted exposure work lasting 8-10 hours, with a patient-therapist ratio of 1:1. Exposures were conducted in all settings relevant for each individual, and patients continued exposure as homework assignments after the end of treatment day 2 and 3. On day 4, in a session with 3-4 hours duration, patients together with therapists summarize the core features of the treatment, important lessons learned and strategies to prevent or handle setbacks. The patients also make a plan for specific exposure tasks for the three weeks following the treatment. Three months after treatment patients are invited for a booster session, either as a live session or per telephone. No exposure work is conducted in the booster session. Since the treatment is delivered as part of ordinary psychiatric treatment patients can receive additional sessions upon request.

In the cET a central intervention is the “lean into the anxiety” (LET), which means to be aware of and try to correct signs of reluctance during exposure. The patients are instructed to recognize every urge to avoid or to ritualize, and instead of just concentrating on refraining from rituals while they endure the anxiety, they are encouraged to actively and intentionally approach the trigger and increase the uncertainty in the situation by reminding themselves that they cannot be a 100% certain that a dreaded consequence might not happen. The discomfort and anxiety are defined as “the raw material for change”. It is further emphasized that in most situations there will be a number of opportunities to practice this approach to emotional regulation (‘micro choices’), and typically the patient works with a number of triggers at the same time, e.g. simultaneous exposure to loop-tapes and in-vivo exposure to different triggers. The exposures are also done in as many different settings as possible, starting with the most relevant (e.g. home, work, the car). Throughout the treatment the patients are encouraged to seek out the situations they expect to be most potent in bringing about such opportunities, which implies that once the exposures have started, there are basically no exposure-free time slots. In this approach a hierarchy for gradual exposure is not applied and there is no focus on, or strategies aimed at, targeting disconfirmation of dysfunctional beliefs (Obsessive Compulsive Cognitions Working Group, 2001). Instead, in cooperation with the therapists, the patients are instructed to deliberately choose exposure tasks with potential for evoking anxiety necessary for change to take place, irrespective of the anticipated degree of subjective discomfort, to increase distress tolerance for uncertainty.

*Comparison between the current and the previous study*

The referral process was identical for the current sample and the sample in Havnen et al. (2014). All patients were referred by their GP to their local district psychiatric facility and secondary referred to the OCD-team. No patients were self-referred. Comparison of pre-treatment characteristics between the present sample and Havnen et al. (2014) are displayed in Table 1. T-tests and Chi-square tests were conducted to test differences in pre-treatment variables. In the Havnen et al. (2014) study, significantly more patients were receiving concurrent SSRI treatment (χ2(1) = 9.0, *p* < .01). On the other pre-treatment characteristics there were no significant differences between the samples.

Prior to treatment initiation patients in both samples were urged to discontinue any use of sleep medication or anxiolytics, and patients using SSRI were instructed to keep medication doses unchanged. All patients in both the current sample and in Havnen et al. (2014) underwent the same treatment procedure.

*Statistical analyses*

Statistical analyses on Y-BOCS were analyzed using a linear mixed-effects model. Fixed effects were time (pre- and posttreatment, and 6-month follow-up), comorbidity and type of previous treatment. Number of additional sessions was included as covariate. Patient was included as random intercept and a scaled identity residual matrix was used. To test if the groups run by BH and GK differed from the groups run by other therapists, a separate mixed model analysis was conducted with time, therapist, and time **×** therapist interaction as fixed effects.

To determine the proportion of patients showing clinically significant change at post-treatment and 6-month follow-up, the Jacobson and Truax (1991) criteria were applied based on total Y-BOCS score. Patients were classified as recovered, improved or unchanged. The criteria for recovered are a) a change larger than the measurement error (the reliable change index; RCI) from pre to post-treatment, and b) a post-score in the range of the non-clinical population. To calculate the RCI and cut-off for non-clinical population we applied the criteria recommended by Fisher and Wells (2005), and RCI was decided as a change on Y-BOCS > 10 and cut-off was decided as Y-BOCS score < 14). *Improved* criteria were a 10-point Y-BOCS reduction from pre-treatment with a Y-BOCS score above 14. The criteria for *unchanged* were a reduction of less than 10 Y-BOCS points, irrespective of the total score meeting cut-off criteria or not. All statistical procedures were conducted with IBM SPSS Statistics version 22.0.

**Results**

*OCD duration/severity and previous treatment*

Mean pre-treatment Y-BOCS score was 25.7 (*SD* = 4.3). In the present sample, 11 (26 %) of the patients were categorized as having moderate symptom severity, 28 (67 %) were severe, and 3 (7 %) had extreme symptom severity.

Information about onset of OCD symptoms was provided by 30 patients, for the remaining 12 patients the information was unclear and is therefore not reported. Mean duration of OCD was 14.5 years (*SD* = 10.4). Of the 31 patients (73.8 %) in the sample who reported having received previous treatment, 7 reported previous ERP therapy trials, whereas 24 described various forms of therapies without ERP components. Twenty-three patients had undergone 1 previous treatment trial, five reported 2 previous trials, one patient reported 3 trials, and two patients reported 4 previous treatments. None of the patients had previously undergone concentrated ERP. A one-way ANOVA was conducted to test for differences in pre-treatment Y-BOCS scores between patients with a history of exposure therapy (*M* = 25.0, *SD* 5.4), various non-ERP treatments (*M* = 24.7, *SD* 3.5), and no treatment (*M* = 28.4, *SD* = 4.5). The overall difference was not significant, *F*(2, 39) = 3.1, *p* = .057; however, there was a somewhat higher Y-BOCS score in patients with no history of previous treatment.

*Comorbidity*

Twenty-six (62 %) patients had comorbid disorders. Thirteen patients (31 %) had 1 comorbid disorder, 11 (26 %) had 2, 1 (2 %) had 3 and 1 (2 %) had 4 comorbid disorders. The most prevalent comorbid disorders were various depressive disorders (n = 16) and generalized anxiety disorder (n = 15). Remaining comorbid disorders were panic disorder (n = 4), social phobia (n = 2), posttraumatic stress disorder (n = 2), hypochondriasis (n = 1) and attention deficit hyperactivity disorder (n = 1). There was a non-significant tendency *t*(40) = 2.0, *p* = .051) for patients with comorbidity (*M* = 26.7, *SD* = 3.5) to have somewhat higher pre-treatment Y-BOCS scores than patients with no comorbidity (*M* = 24.1, *SD* = 5.1).

*Primary outcome*

All patients completed treatment and were assessed with Y-BOCS as the primary outcome measure. An independent psychologist conducted the interviews. At post-treatment the sample had a mean Y-BOCS score of 10.8 (*SD* = 3.9) and at 6-month follow-up the mean was 12.2 (*SD* = 6.4). As comorbidity and previous treatment had nearly significant effects on baseline level of Y-BOCS, these two variables were included in the mixed model analysis. Furthermore, number of additional sessions was included in the analysis as a covariate. There was a significant effect of time, *F*(2, 126) = 120.1, *p <* .001. Analyses of time effects revealed a significant decrease in Y-BOCS score from pre- to post-treatment and pre- to 6-month follow-up. The differences between post-treatment and 6-month follow-up were not significant. The effects of comorbidity, previous treatment and number of additional sessions were not significant.

The two groups led by BH and GK were compared to the remaining eight groups led by other therapists. Mean (SD) Y-BOCS scores for the BH/GK and the other therapists’ groups, respectively, were at: pre-treatment 24.3 (3.7) vs. 26.1 (4.4), post-treatment 11.4 (4.1) vs. 10.7 (3.9), and 6 month follow-up 11.4 (9.8) vs. 12.4 (5.5). The analysis showed a significant effect of time, *F*(2, 84) = 67.5, *p* < .001, but non-significant effects of therapists, *F*(1, 42) = .4, *p* = .53, and time **×** therapists *F*(2, 84) = .5, *p* = .64.

*Clinically significant change*

Clinically significant improvement was calculated based on the procedures recommended by Jacobson and Truax (1991). At post-treatment 73.8 % of the sample was categorized as recovered, 9.5 % as improved and 16.7 % as unchanged. At 6 months follow-up the rates were 59.5 % recovered, 16.7 % improved and 23.8 % unchanged.

*Additional sessions*

In addition to the 3-month booster session, patients could request additional sessions if needed. Nine patients received additional sessions. Six of these patients conducted exposure work in the extra sessions; three patients had 1 session, two patients had 2, and one patient had 5 sessions. Three patients received psychoeducation or counselling on other clinical issues than OCD (e.g. marital issues). For six of the patients all extra sessions were conducted within three months after treatment.

In order to investigate if receiving additional sessions affected the overall Y-BOCS results separate LMM analyses were run for the patients without additional sessions (n=33). The effect of time was significant, *F*(2, 32) = 112, *p* <.001, and the estimated mean and standard deviation at six-month follow-up (*M* = 12.21, *SD* = 6.74) was very similar to the overall Y-BOCS score at six-month follow-up (*M* = 12.21, *SD* = 6.42). Receiving additional sessions thus did not affect the overall Y-BOCS score.

*Employment status and treatment satisfaction*

Thirty-five patients completed Work and social adjustment scale prior to treatment. Mean score was 21.6 (SD 10.5), indicative of a moderately severe impairment in the sample overall.

Thirty patients from the sample were available at 6-month follow-up for interview concerning to what extent the treatment had led to change in the job situation. Of those, 12 (40 %) stated that work was influenced in a highly positive direction, 10 (33.3 %) stated it was influenced in a positive direction, 7 (23.3 %) reported no change and 1 (3.3 %) patient stated that the job situation was worse. This patient had been on sick-leave prior to and during treatment, but had returned to work in the follow-up period, which may explain the reported deterioration of the work situation. In total, 22 (73.3 %) of the patients available at six-month follow-up experienced a positive change in work interference.

Assessment of treatment satisfaction with CSQ-8, indicated a high degree of overall treatment satisfaction (*M* = 29.6, *SD* = 2.5).

*Medication status*

At 6 month follow-up information about medication status was available for 29 patients. Of the 11 patients who were receiving concurrent SSRI while in treatment, information about medication was available from 7 patients at 6 months follow-up. Two patients had discontinued SSRI and 5 were still using SSRI. Three of those who were not treated with SSRI before ERP treatment had initiated SSRI medication at follow-up. A one-way ANOVA was run to check whether Y-BOCS assessed severity differed between the patients with and without SSRI at any time point. There was no significant difference between the patients, however, the Y-BOCS score at 6 months follow-up was close to significantly different (*F*[1,5] = 5.5, *p* = .06), with the patients who were still using SSRI showing higher mean Y-BOCS value (*M* = 19.0, *SD* = 5.6 vs *M* = 8.0, *SD* = 5.7). To check whether receiving concurrent SSRI during treatment was related to severity of Y-BOCS scores at 6 months follow-up, a point-biserial correlation was calculated with concurrent medication as a discrete dichotomous variable (present or absent). Concurrent SSRI medication during treatment was unrelated to Y-BOCS score (*r*pb = .15, *p* = .34) at 6-month follow-up.

*Replication study*

*Comparison of outcome at post-treatment and follow-up*

*Primary outcome.* Y-BOCS scores for the present sample and Havnen et al. (2014) are displayed in Table 2. The linear mixed model for repeated measures of Y-BOCS showed a statistically significant effect of time (*F*[2, 154] = 273.5, *p* < .001). Post-hoc pairwise comparisons showed a significant decrease from pre- to post-treatment, while the differences from post-treatment to follow-up were not significant. Group and time **×** group interaction effects were not significant at any time-point (*p* > .05).

*Clinically significant change.* At post-treatment, outcome rates in Havnen et al. (2014) were 77.2 % recovered, 11.4 % improved and 11.4 % unchanged. A Chi-square test revealed a non-significant difference from the present sample (χ2 (2) = .46, *p* = .79). At 6-month follow-up the rates in Havnen et al. (2014) were 74.3 % recovered, 14.3 % improved and 11.4 % unchanged. The differences in recovery rates at 6-month follow up between the present sample and Havnen et al. (2014) were not significant (χ2 (2) = 2.31, *p* = .32).

*Treatment satisfaction.* CSQ-8-assessed treatment satisfaction in the present sample did not differ significantly from Havnen et al. (2014), *t*(70) = .57, *p* = .57.

*Employment status.* In Havnen et al. (2014), 18 of 35 patients reported OCD-related interference with work or studies at pre-treatment and after treatment 15 of the 18 patients described a positive change, meaning that 83% of the sample experienced positive gains. A Chi square test revealed no significant difference between these results and the results from the present study in proportions of patients experiencing a positive change (73%) in work interference due to OCD symptoms (χ2 (2) = 6.37, *p* = .43).

*Tracking of recovery rates.* Comparisons of recovery rates for the individual patients in the present sample and Havnen et al. (2014) are displayed in Table 3. In Havnen et al. (2014), 23 of the 27 patients (85%) who were recovered at post-treatment, were still classified as recovered at 6-month follow-up. In the present study, 22 of the 31 patients (71 %) who were recovered at post-treatment, were still recovered at 6-month follow-up. A chi-square test showed that the difference in proportion of patients who remained recovered (85% versus 71%) was not statistically different (χ2 (1) = 0.96, *p* = .33).

**Discussion**

The aims of the present study were to report the treatment results of patients undergoing the concentrated Exposure Treatment (cET) approach for OCD and to investigate if the results from a previous effectiveness study (Havnen et al., 2014) from the same clinic could be replicated. Outcomes on Y-BOCS scores were encouraging, with significant reductions in obsessive-compulsive symptoms from pre- to post-treatment, and these results were maintained at follow-up assessment. The recovery rate following treatment was high, with 74 % recovered at post-treatment and 60 % recovered at 6 months follow-up. There were no significant differences in Y-BOCS scores at any assessment point between the present study and the Havnen et al. (2014) study. Further, the recovery rates in the two studies did not differ significantly.

The Jacobson and Truax (1991) criteria were applied for determining clinically significant change. This approach is preferable to other criteria when deciding clinical response, e.g. a percentage reduction in symptoms or being below a certain cut-off at post-treatment. We applied strict criteria for clinical change, which meant that patients who were below the Y-BOCS cut-off of 14 points, but did not meet criteria for RCI, were nonetheless classified as unchanged. The high rate of recovered patients is thus an encouraging finding.

In the mixed model analyses several variables were tested to check if the treatment outcome was influenced by comorbidity, previous treatment, and number of extra sessions in addition to the four days of treatment. None of these variables had a significant effect on the treatment outcome. The finding that comorbidity was unrelated to outcome is interesting given that previous research has shown that comorbidity may influence the outcome of ERP treatment (Rosa-Alcázar et al., 2008), and supports the robustness of the treatment results.

We also tested if there was a difference in treatment outcome in the groups led by the developers of the cET and the groups run by other therapists. Eight of the ten groups were led by other therapists than the developers, providing some data to test for therapist effects. The analyses showed that the treatment results were not significantly different between the groups at any time point, which is an interesting finding pointing to the generalizability of the treatment format, at least across therapists at the same clinic. The next step in the replication process is to change both therapists and clinic where the treatment is carried out. This work is currently underway in Norway.

OCD is known to cause functional impairment, thus an important result is the improved employment situation reported by the patients. More than 73 % of the patients described a positive or highly positive development with regard to work or studies, and only one patient described deterioration in the employment situation. The results on employment status indicate that the patients undergoing the cET had a marked reduction in functional impairment after treatment and the results from the present study were comparable to those of Havnen et al. (2014).

The results showed that receiving SSRI medication concurrently with the cET treatment did not improve the outcome. To the opposite, patients who were prescribed SSRI had somewhat higher Y-BOCS scores at follow-up than patients without medication. Although this finding must be treated with caution due to the small number of patients, the finding that SSRI does not enhance treatment outcome is supported by the Öst et al. (2015) meta-analysis which did not find an added effect of concurrent SSRI medication in ERP treatment.

There are several theoretical and practical advantages to delivering treatment in a concentrated format. The most obvious is that patients may have faster symptom reduction and return to work sooner, which clearly has social and economic benefits. Also, when several patients undergo treatment together group cohesion may be of importance in terms of mutual support and empathy, given the demanding nature of exposure therapy. Likewise, therapists may work together and provide mutual support in difficult exposure situations. Another important aspect of the cET is that the patients undergo treatment in four successive days, which makes it unlikely that between-session setbacks occur. This aspect of the treatment format may in part contribute to the favorable treatment results. No patients dropped out of treatment, which is in contrast to a recent meta-analysis (Öst et al., 2015) which showed an attrition rate of 19.1% in ERP studies. These results, in combination with the positive self-reported treatment satisfaction, indicate a high treatment acceptance of the treatment format.

In addition, there are theory-based arguments for delivering exposure treatment in a concentrated format. In line with research on inhibitory learning (Craske et al., 2014), it has been suggested that it is of importance to conduct exposure to multiple contexts simultaneously, instead of exposing the patient to one fearful stimuli at a time, and the concentrated format may allow for multiple simultaneous fear cues more effectively than spaced sessions. Research imply that therapeutic outcome is not predicted by the degree to which fear decreases during exposure or the fear level at the end of the session, but rather the degree of inhibitory learning, which is argued to be central to fear extinction (Craske et al., 2014). The cET may provide an ideal platform for such learning as the patients are exposed to multiple fear cues simultaneously and throughout several hours during the days of exposure treatment. This is done in a range of contexts, and instead of selecting exposure tasks based on a hierarchy defined by expected discomfort; anxiety and discomfort are defined as the raw material for change and patients are encouraged to start with the exposure tasks which are expected to provide the largest change.

The four day cET format also bears resemblance to the progress in the treatment of other anxiety disorders where brief treatment formats have been developed and demonstrated effective (e.g. Davis III, Ollendick, & Öst, 2012). However, research on brief treatment formats for OCD have been scarce. A study by Wilson, Neziroglu, Feinstein, and Ginsberg (2014) showed very promising results following two days of treatment. The study did not use Y-BOCS, which makes it difficult to compare the treatment outcome with the present study. Nonetheless, the study by Wilson et al. (2014), the Havnen et al. (2014) study and the present study all suggest that brief treatments of OCD may be a feasible approach to providing care for OCD-patients.

It might be questioned whether this concentrated treatment is practical and can be implemented in all other regions of the world. This is an empirical question which can only be answered through controlled studies in various regions. It should also be pointed out that the cET does not require a group format. Our clinical experience with cET in individual format is that the effects are equally good. Thus, the feasibility of this treatment program needs to be tested in a much larger scale and a national study in Norway is now underway.

A central aim of this study was to evaluate if the results of the present effectiveness study replicated the results from Havnen et al. (2014). The demographic variables in the two samples were comparable, with the exception of significantly more patients with concurrent SSRI treatment in Havnen et al. (2014). The patient samples had equal symptom severity as assessed with Y-BOCS, the treatment format was identical and the mode of application was equal. The therapists delivering the treatment differed between the samples; in Havnen et al. (2014) all treatment groups were led by the developers of the cET (GK and BH), whereas in the present study eight of ten groups were led by other therapists. In addition, different therapists than in Havnen et al. (2014) were responsible for the treatment of the patients in the current study. The primary outcome measure was equal in the two studies, yielding non-significant differences in Y-BOCS assessed symptom reduction at post-treatment and follow-up, as well as corresponding rates of clinically significant change. Based on these findings we conclude that the present study provides a replication of Havnen et al. (2014) for the same type of patients, treated at the same clinic with the same treatment format, but delivered by different therapists under supervision by the treatment developers.

*Limitations*

The present study is part of standard care at an outpatient unit, therefore control conditions were not an option. Concentrated treatment formats involve a high degree of therapist assistance and the possibility for patient expectations need to be addressed. Studies also show that higher symptom severity is related to better treatment outcome, which may imply that patients tend to seek treatment at peaks of severity, given that OCD may fluctuate in severity over time. In order to control for such potentially confounding variables, a randomized controlled study is needed with assessment of long-term efficacy.

*Clinical implications*

The major strength of the present study is the replication of a previous effectiveness study on cET, indicating that concentrated treatment for OCD is a feasible format which can be delivered with comparable results in different samples of patients by different therapists. Another promising implication of the cET is the results suggesting that patients have improved work status, which means that patients may return to work sooner compared to treatments with longer treatment periods. The cET represents a novel approach to the treatment of OCD and illustrates how OCD can be successfully treated in an intensive therapy format. This further strengthens the evidence suggesting that brief treatments are effective for anxiety disorders.

**Ethical statements**

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, and its most recent revision. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional guides on the care and use of laboratory animals. This paper uses data collected as part of the standard assessment procedure at the outpatient OCD-clinic in Helse Bergen, Norway. The study was approved by the Personvernombudet, August 5, 2012.

**Disclosure statement**

There is no conflict of interest.

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|  |  |  |  |
| --- | --- | --- | --- |
| Referred for treatment (N=131) | |  |  |
|  |  |  |  |
| Diagnostic interview (N=131) | |  | Excluded (N=56)  OCD not primary diagnosis: 56 |
|  | |  |  |
| Eligible for treatment (N=79) | |  | Received individual treatment (N=37)  No available cET slot: 32  Language difficulties: 1  Comorbid Psychosis: 3  Comorbid Asperger’s: 1 |
|  | |  |  |
| Received cET (N=42) | |  |  |

*Figure 1.* Flow chart of participants. Inclusion period: February 2013 - July 2014.

Table 1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Comparison of pre-treatment patient characteristics | | | | | | | | |
|  | |  | Present study | | Havnen et al. 2014 | |  | |
| Variable | |  | M | SD | M | SD | *t*-value | |
| Mean age (years) | |  | 32.6 | 10.8 | 32.4 | 10.0 | 0.08 | |
| Y-BOCS pre-treatment | |  | 25.7 | 4.3 | 26.1 | 4.3 | 0.41 | |
| Duration of OCD (years) | |  | 14.5 | 10.4 | 16.7 | 10.4 | 0.09 | |
|  |  |  | N | % | N | % | χ2 | |
| Proportion women | |  | 28 | 67 | 26 | 74 | 0.53 | |
| Previous treatment | |  | 31 | 74 | 26 | 74 | 0.00 | |
| SSRI treatment | |  | 11 | 26 | 21 | 60 | 9.00a | |
| Comorbidity | |  | 26 | 62 | 21 | 60 | 0.29 | |
| GAD | | | 12 | 29 | 7 | 20 |  |
| MDD | |  | 10 | 24 | 6 | 17 |  |
| Hypochondriasis | |  | 1 | 2 | 1 | 2 |  |
| Social phobia | |  | 1 | 2 | 1 | 2 |  |
| PTSD | |  | 1 | 2 | 0 | 0 |  |
| Panic disorder | |  | 1 | 2 | 6 | 17 |  |
| Paranoid psychosis | |  | 0 | 0 | 1 | 2 |  |

*Note*. GAD=Generalized anxiety disorder; MDD=Major Depressive Disorder; PTSD=Post-Traumatic Stress Disorder. a *p* < .01

Table 2

Means and standard deviations on YBOCS.

Present sample Havnen et al. (2014)

Y-BOCS M SD N M SD N

Pre-treatment 25.71 4.33 42 26.14 4.33 35

Post-treatment 10.79 3.85 42 9.00 4.76 35

6-month follow-up 12.21 6.42 42 10.26 5.67 35

Table 3

Comparison of clinical improvement rates at post-treatment and 6-month follow up.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Present study Havnen et al. (2014)

Follow-up Follow-up

Post-treatment Recovered Improved No change Total Recovered Improved No change Total

Recovered 22 4 5 31 23 4 0 27

Improved 1 2 1 4 2 1 1 4

No change 2 1 4 7 2 0 2 4

Total 25 7 10 42 27 5 3 35

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. In order to ensure high quality as the format spreads, there is now developed a formalized certification procedure for 4-day format therapists. [↑](#footnote-ref-1)