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BERGEN 4-DAY TREATMENT (B4DT) FOR OBSESSIVE-COMPULSIVE DISORDER – AN OBSERVATIONAL PILOT STUDY OF A TREATMENT PROTOCOL IN FINLAND

ABSTRACT

Background: Bergen 4-Day Treatment (B4DT) is a concentrated exposure treatment developed to treat obsessive-compulsive disorder (OCD) that has proven to be highly acceptable and effective in several countries. The objective of this pilot study was to investigate the feasibility and preliminary treatment responses of this promising treatment in a Finnish healthcare setting.
Methods: A Finnish therapist team was trained in collaboration with Norwegian B4DT therapists and developers of the method. Twenty psychiatric outpatients diagnosed with OCD and with previous OCD-specific treatment without adequate response received B4DT in HUS Helsinki University Hospital in 2022. Main outcome measure was the self-report version of Yale-Brown Obsessive-Compulsive Scale (Y-BOCS-SR) at 10 days and three months after the treatment. Before the treatment, 55% of the patients were classified as having severe to extreme OCD (Y-BOCS-SR score 26-40).
Results: At the 10-day follow-up, 56% of the treated patients reported clinically significant (≥35%) reduction in their OCD symptoms and 28% were in remission or had only minor symptoms (Y-BOCS-SR score ≤13). At three-month follow-up, the numbers were 58% and 30%, respectively. Additionally, less anxiety and depressive symptoms, sleeping problems, and better psychosocial functioning and general wellbeing were reported after the treatment. Most of the patients were highly satisfied with the given treatment (Client Satisfaction Questionnaire, CSQ-8, mean score 29.2 on scale 0-32).
Conclusions: B4DT can be successfully implemented in a Finnish healthcare setting. Both patient and employee satisfaction were high. Our treatment results were somewhat more modest compared to the Norwegian studies of B4DT, in which the patient outcome has been remarkably good. However, there is a need for more detailed RCT research comparing the B4DT with other treatment options available.

KEYWORDS: B4DT, OCD, ERP, CBT, IMPLEMENTATION, INTENSIVE TREATMENT

INTRODUCTION

Obsessive-compulsive disorder (OCD) is ranked among the 10 most debilitating mental disorders by WHO, affecting 1-3% of the population, having early onset, a chronic course if untreated, and substantial psychiatric comorbidity and societal costs [1,2]. OCD manifests as obsessions, i.e., invasive unpleasant or repulsive thoughts, mental images, or urges (e.g., fear of germs or contamination, or thoughts involving taboos like sex, religion or harm), and as compulsions that are time-consuming activities performed according to a certain pattern or rule (e.g., excessive cleaning or washing, checking, or neutralizing mental rituals such as counting or praying). These aim in one way or another to reduce the anxiety associated with obsessive thoughts or to prevent an act or event that is feared to be harmful. OCD dominates and significantly limits a person's everyday life. Effective treatments are not sufficiently available. Exposure and response prevention (ERP) therapy, with or without components of cognitive behavioural therapy (CBT), has been shown to be effective and is listed as first-line treatment in international treatment guidelines [3–5]. However, despite the documented efficacy of this treatment, the effect sizes dilute from large to medium and modest at follow-ups [6,7]. Therefore, the need for new treatment modalities for this patient group is urgent.

Bergen 4-Day Treatment (B4DT) is a concentrated exposure treatment (cET)[8] developed to treat OCD. B4DT brings together several components that have been shown to be effective in OCD treatment: the cognitive-behavioural model and giving psychoeducation; learning the effective exposure method; concentrated exposure treatment (cET); structured treatment process, and a combination of the advantages of group- and individual-based treatment in one. The intensive period (four days) is given in groups of 3-6 patients with a 1:1 therapist-patient ratio. Therefore, the treatment can be seen as an individual treatment in a group setting. As described by the method's developers [9], one of the main features of B4DT is to teach the patients to actively approach whatever elicits the relevant anxiety or discomfort, and to help them systematically use the anxiety and discomfort as a cue to "LEan into The anxiety" (LET technique) instead of employing obvious or subtle avoidance. For learning this, B4DT utilizes a longer version of cET, which seems to yield better effects than standard ERP [9]. During the B4DT, the therapist typically serves as a coach for learning the LET technique in the beginning, gradually leaving more responsibility to the patient to be their own therapist.

In Norway, the treatment has appeared to be highly acceptable and effective: as many as 94% of patients responding and 77% recovering, and corresponding figures at 12-month follow-up, 83% and 68% [10]. The effect of B4DT has been shown to last on a long-term basis, with still as many as 72% classified as recovered four years after the treatment [11]. In addition to the decreased OCD symptoms, B4DT has been shown to significantly improve symptoms of depression and generalized anxiety [8,10,12]. So far, replication studies have been done with new therapists and new samples, [10,13], in new sites [9,12] and in a few countries outside Norway [14]. Overall, the effectiveness of B4DT in previous studies has been remarkably if not exceptionally high. However, one of the main limitations of the previous research is that most of the studies have been done by the Norwegian research group who developed the method, and so far there has been only one randomized controlled trial (RCT) study on the effectiveness of B4DT in comparison to other OCD treatments, comparing B4DT with self-help or waiting list [15,16].

Availability of effective treatments for OCD is very limited in Finland and typical psychosocial treatment is weekly individual or group CBT. In both, the total amount of guided ERP during the session tends to be modest. The aim of this pilot study was to investigate the feasibility, implementation and outcome of B4DT in Finnish setting.

METHOD

SETTING

The present pilot study was done in HUS Helsinki University Hospital. The study was approved by the ethics committee of HUS (HUS/1085/2022). The treatment was delivered from June to November in 2022 as a part of standard care at HUS Psychiatry and was free of costs for the patients.

PARTICIPANTS AND THE INTERVENTION

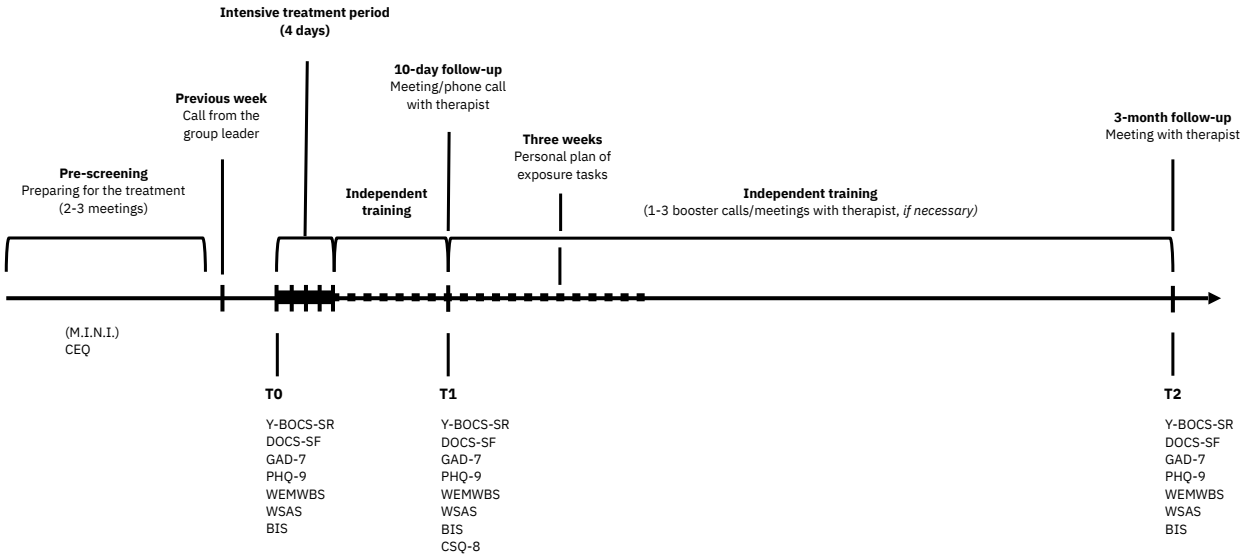
To participate in these B4DT pilot groups, a doctor's referral and treatment contact in HUS psychiatry was required. The inclusion criteria for the treatment were: confirmed ICD-10 clinical diagnosis of OCD (F42); minimum age of 18; refractoriness to at least one adequate OCD-specific treatment (e.g., drug trial, internet-delivered CBT, individual- or group-based CBT), and motivation to do

ERP. Patients gave written informed consent. Participation or non-participation had no impact on other treatment modalities or possibilities for the patients.

Only patients diagnosed with OCD according to ICD-10 criteria [17] were included in the study. The diagnosis was confirmed with Mini International Neuropsychiatric Interview (M.I.N.I.)[18] in case of any ambiguity during the pre-screening. The exclusion criteria for the study were: concurrent active psychotic or substance use disorder; imminent risk of suicide; new antidepressant or antipsychotic pharmacotherapy trial started within the last six weeks; use of benzodiazepines, other than occasionally for insomnia, and ongoing other evidence-based psychotherapy. If the patient was currently receiving psychotherapy or other psychosocial treatment for OCD, it was required to be discontinued for the intensive 4-day treatment period and for at least three months after the treatment. As the first three pilot groups were monitored by Norwegian trainer-therapists to assure adherence to the treatment protocol, participants of these groups were required to have sufficient English skills. After that, the groups were held in Finnish.

The treatment process lasted approximately four months, including the pre-screening and preparing phase, the 4-day treatment week of cET, the follow-up period with two meetings with the therapist (10 days and three months after the 4-day treatment) as a standard procedure and 1-3 additional booster sessions if necessary (*Figure 1*). Self-rated data were routinely collected as a part of standard quality control procedure of HUS Helsinki University Hospital.

Figure 1. Process of B4DT before and after the intensive 4-day treatment period and used questionnaires or structured interviews in each phase of the process



Note. *M.I.N.I.* Mini International Neuropsychiatric Interview, in pre-screening, M.I.N.I. was done only if deemed necessary. *CEQ* Credibility/Expectancy Questionnaire. T0 = Pre-treatment time point on day one of the intensive treatment period, prior to concentrated exposure treatment (cET) given in days 2 and 3. At the end of day 4, a personal plan was made to support the exposure tasks for the first three weeks of independent training. T1 = 10-day follow-up, T2 = three-month follow-up, *Y-BOCS-SR*, the self-report version of Yale-Brown Obsessive-Compulsive Scale, *DOCS-SF*, Dimensional Obsessive-Compulsive Scale-Short Form, *GAD-7* Generalized Anxiety Disorder 7-item scale, *PHQ-9* Patient Health Questionnaire-9, *WEMWBS* Warwick-Edinburgh Mental Wellbeing Scale, *WSAS* Work and Social Adjustment Scale, *BIS* Bergen Insomnia Scale, *CSQ-8* Client Satisfaction Questionnaire-8

THERAPISTS AND THEIR TRAINING

Eight clinical psychologists and one psychiatrist working in the HUS Psychiatry formed the Finnish B4DT team and were trained for the treatment. All had previous experience of treating OCD patients with ERP and practices of CBT. First, a two-day psychoeducation seminar was held for the team about the main principles of the B4DT. As supervisors, the team had one of the developers of the treatment prof. Bjarne Hansen and psychologist Kristen Hagen from the Haukeland University Hospital, Bergen, Norway. After that, four treatment groups were held with 2-6 Norwegian experienced therapists in each group. In the first group, each patient had two therapists, a Finnish trainee and a Norwegian trainer. In treatment groups 2 and 3, therapist to patient ratio varied from 2:1 to 1:1, depending on the number of Norwegian trainers available. From the fourth group onwards, groups were held with Finnish therapists, with 1:1 therapist to patient ratio. In this group, the Finnish team had the possibility to consult two Norwegian therapists whenever needed. In B4DT, therapists work as a team and the therapist-patient pairs are continually evaluated. If needed, therapists could be changed to ensure better treatment for the patient. In our study, no therapist changes were made.

PRE-SCREENING PROCESS AND PREPARING PATIENTS FOR THE TREATMENT

Therapists met referred patients for 2-3 times to pre-screen their suitability for the treatment, to ascertain the severity of their OCD and to recognize possible other co-occurring psychiatric disorders, such as generalized anxiety disorder (GAD), panic disorder or personality disorders, that might affect or disturb focusing the treatment on OCD. Comorbidity was not an exclusion criterion for access to treatment, but if a disorder other than OCD clearly interfered with the patient's life more strongly, it was recommended to focus the treatment on this problem before or instead of B4DT. If no exclusion criteria were met, the therapist introduced the treatment by showing a video presenting the B4DT (https://www.youtube.com/watch?v=nqx8knpy3i4) with Finnish subtitles. Patients' expectations for the treatment, based on the information given so far, was assessed by semi-structured interview with an adapted version of Credibility/Expectancy Questionnaire (CEQ)[19]. If the patient rated his/her expectancy or the credibility of the treatment protocol less than 70/100, the concerns and doubts were discussed with the patient to clarify possible misunderstandings. After that, the second video presenting the outline and content of the treatment format (https://www.youtube.com/watch?v=1Fnxt0_ljpY&feature=youtu.be) was watched together with the patient. After the patient had been offered a place in the treatment group, and he/she accepted the offer, more detailed information about the treatment was given. As a preparation for the treatment, the patient was advised to make a list of relevant exposure tasks. The instruction was to find tasks that "their OCD would appreciate the least", which often are the most relevant ones. Tasks were also briefly discussed in a phone call with the group leader a week prior to the treatment.

INTENSIVE TREATMENT PERIOD (4 DAYS)

The patients received cET, conducted over four consecutive days, in HUS Psychiatry outpatient clinic. The structure of the given treatment followed the Norwegian B4DT manual demonstrated by the Norwegian therapists. On the first day, patients participated in a 3-hour manualized psychoeducation in-group, shared their plan for individual exposure tasks and filled out the questionnaires (time point T0). In the afternoon, a voluntary one-hour psychoeducational lecture was held for the patients' family members and close ones to increase their understanding of OCD and how they can best support the patient.

Days 2-3, the focus was on individually designed, therapist-assisted exposures in as many OCD relevant settings as possible for each patient (e.g., in the polyclinic or surrounding area, in the nearby mall or at their homes). Each exposure session lasted 1-3 hours. The progress and challenges with exposure training were reported and discussed in the group meetings held in the morning, at lunch and in the afternoon. At the end of days 2 and 3, patients were advised to continue the exposures on their own. In B4DT protocol, sometimes therapist contact is offered to the patients during the evening hours, latest at 9pm. However, in our study, therapists were instructed not to contact patients in order to encourage their own independent work with OCD.

On the last day, a 3–4-hour group session was held to cover core features of the treatment and to go through the strategies to prevent and handle setbacks. Patients also had one last session with their therapist, to strengthen more independent exposure training and to make a personal plan on how to continue the exposure tasks for the next three weeks. The patients were informed on how to contact the healthcare provider if an emergency should occur during that time.

FOLLOW-UP PERIOD

All patients were offered two individual follow-up sessions with their therapist at 10 days (T1) and three months (T2) after the treatment. Therapists were instructed to schedule the follow-up times with the patient as precisely as possible for 10 days and three months after the treatment. However, especially in the three-month follow-up, there may have been a few days of variation in the implementation time due to reasons related to the patient or the therapist (e.g., illnesses, scheduling reasons). In the first follow-up the therapist met with the patient for 15-45 minutes, either by phone or in face-to-face/video meeting, and in the second follow-up for approximately 45 minutes (face-to-face/video meeting), to discuss their experiences of independent ERP training after the treatment. No exposure work was conducted in these sessions. If the patient reported any difficulties, the principles of the LET technique were repeated with an emphasis on how to find the best way for the patient to practise the method on their own. The patients were encouraged to become their own therapist, but if it was deemed necessary by the therapist and/or the therapist team at the end of the 4-day treatment or at the 10-day follow-up, 1-3 booster sessions with the therapist were offered between T1 and T2 to support their independent training. The booster sessions varied from short phone calls to 45-minute meetings that were held either by phone or face-to-face. At both follow-ups (T1 and T2) patients filled in questionnaires.

QUESTIONNAIRES

Background information. The diagnoses and medications were acquired from the electronic health record (EHR). Other background information was gathered via a questionnaire at T0 and T2 (*Table 1*). From the second pilot group onwards, the patients were also asked to give open written feedback about the B4DT at T2.

OCD symptoms. The primary outcome was within-individual decline in Y-BOCS-SR score before the intervention (T0) vs. after the treatment at 10 days (T1) and at three months (T2). The time points may offer slightly different kinds of information: at time point T1, severity of the reported OCD symptoms may be more related to how well the patient was able to internalize the main principles of the 4-day treatment week and managed to implement the learned skills (LET technique) to everyday life according to the plan made at the end of treatment week. If necessary, the therapist supported this process in the first follow-up meeting and in the possible booster sessions. In contrast, reported OCD symptoms at T2 may associate more with the patient's ability to maintain the change and learned skills more independently. Y-BOCS-SR is a self-rated version of Y-BOCS consisting of 10 items that rate the severity of the patient's most prominent obsessions (items 1-5) and compulsions (items 6-10) with following parameters: time, interference, distress, resistance and control. Other used questionnaire for OCD symptoms was The Dimensional Obsessive-Compulsive Scale-Short Form (DOCS-SF), a brief (5-item) self-report measure which is less widely used but has shown to have good psychometric properties with a cut-off point of 16 identifying OCD patients from non-patients [20].

Secondary outcome measures. Anxiety symptoms were measured with the Generalized Anxiety Disorder 7-item (GAD-7) scale [21]; depressive symptoms with the Patient Health Questionnaire-9 (PHQ-9)[22]; psychosocial functioning and disability using the Work and Social Adjustment Scale (WSAS)[23]; general wellbeing with the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) [24]; sleep problems using the Bergen Insomnia Scale (BIS) [25], and patient satisfaction using the Client Satisfaction Questionnaire-8 (CSQ-8)[26].

From all the questionnaires used, three did not have a Finnish translation prior to this pilot study. Thus, DOCS-SF was translated from Norwegian, and BIS and WSAS from English into Finnish. The quality of the translation was confirmed by professional back translation.

Table 1. Descriptives of the sample (N = 20)

	n (%) / M (SD)	Range
Age	31.5 (10.5)	18–51
Women	13 (65 %)	
Single	10 (53 %)	
Education primary school vocational/high school lower university degree Master's degree	 2 (10 %) 8 (40 %) 4 (20 %) 6 (30 %)	
Working/studying	13 (45 %)	
On social benefits	13 (45 %)	
Years with OCD symptoms	17.5 (8.4)	7–33
Years with OCD diagnosis	7.9 (7.4)	0–30
OCD in the family	12 (60 %)	
Previous psychotherapy	15 (88 %)	
Years of psychotherapy	5.0 (6.7)	1–24
Previous ERP	11 (65 %)	
Psychotropic medication antidepressants anti-epileptic medication antipsychotics anxiolytics other	14 (70 %) 12 (60 %) 1 (5 %) 6 (30 %) 4 (20 %) 8 (40 %)	

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	n (%) / M (SD)	Range
Comorbidity	17 (85 %)	
GAD	4 (20 %)	
Other anxiety disorder	2 (10 %)	
Adjustment disorder	1 (5 %)	
Depression	11 (55 %)	
Personality disorder	4 (20 %)	
ADHD	2 (10 %)	
Mixed specific developmental disorder	1 (5 %)	
Obesity	2 (10 %)	
Epilepsy	1 (5 %)	
Other somatic problems	8 (40 %)	

Note: *OCD* obsessive compulsive disorder, *ERP* exposure and response prevention therapy, *GAD* generalized anxiety disorder, *ADHD* attention deficit hyperactivity disorder

STATISTICAL ANALYSES

Statistical analyses were performed with the SPSS version 25.0. [27], using repeated measures ANOVA for Y-BOCS-SR, DOCS-SF, GAD-7 and PHQ-9 with Greenhouse-Geisser corrections. Based on the previous studies of the treatment, our hypothesis was that B4DT would decrease patients' OCD symptoms. Thus, the contrasts in the analyses were pre-planned as comparisons between T0 vs. T1 and T0 vs. T2. For additional analyses comparing the patients who benefitted best from the B4DT and those whose symptoms had the least change, independent Student's t-test was conducted for the continuous variables and χ^2 test for categorical variables. Effect sizes were calculated with Cohen's d (MeanT0 – MeanT1 or T2)/SDT0)[28].

With some patients, outcome variables had <10% of items missing which was deemed to be at random; in these cases, imputation was done by using mean calculated from non-missing items within the variable and within the patient. Despite the multiple reminders from the therapist, two patients did not return any of the follow-up questionnaires at T1, and one of these did not return questionnaires at T2 either. For these two patients who had all questionnaires missing at time point T1 and/or T2, imputation was not performed, so that the conclusions based on the data would not be biased in any other direction than was truly observed. Thus, these two patients were excluded from the repeated measures ANOVA.

Based on international consensus criteria [29,30], ≥35% reduction of an individual patient's pre-treatment Y-BOCS-SR score is classified as a *clinically significant response* to the treatment. The same criterion was used for DOCS-SF. The following benchmarks are used for classifying the severity of OCD symptoms: Y-BOCS-SR score ≤13 points is classified as *mild symptoms/remitted*; points 14 to 25 as *moderate symptoms*, and 26-40 points as having *severe to extreme symptoms* [31]. With GAD-7 and PHQ-9, the change was classified as clinically relevant if it was at least 6 and 5 points, respectively.

RESULTS

PATIENTS

In total, 46 patients were referred to the treatment from March to November in 2022. From these, seven referrals were disqualified: due to patient's transfer outside the healthcare area covered by HUS Helsinki University Hospital; as the patient could not be reached; due to the patient cancelling the interview; due to other patient-related reasons (e.g., substance abuse, trichotillomania) or due to otherwise not fulfilling the admission criteria for the treatment, and 39 patients were taken into the pre-screening process. Of these, eight patients were excluded: due to lack of treatment motivation; for not fulfilling the diagnostic

criteria for OCD; due to use of benzodiazepines; due to language-related reasons or due to other patient-related reasons (e.g., dermatillomania, panic disorder or other symptomatology that was evaluated as a priority in the treatment). With five patients, the pre-screening process was prolonged due to their unclear treatment motivation or suitability for the treatment. The treatment was offered to the remaining 26 patients, from which 21 patients were able to attend the treatment groups covered by this pilot study. From these, one patient wished to withdraw from the study during the follow-up period and any observations received from this person were not included in the data. The descriptive statistics of the remaining 20 patients are presented in *Table 1*. The patients (65% female) were between 18 and 51 years old (Mean=31.5, SD=10.5). 70% of the patients were on psychotropic medication. 85% had other psychiatric diagnoses in addition to OCD, and 70% had more than one. The most common comorbid disorder was depression (55%). The pre-treatment Y-BOCS-SR score did not differ between the patients with or without psychotropic medication (t(15)=.27, *p*=.79), or between the patients with or without comorbid disorders (t(18)=.36, *p*=.73). On average, the patients had OCD symptoms for 17.5 years (SD=8.4) and OCD diagnose for 7.9 years (SD=7.4). Most of the patients (88%) had previously had psychotherapy, on average for 5 years (SD=6.7), and 65% had previous experience of ERP treatment.

Seven patients (35%) had at least one additional booster session with their therapist during the three-month follow-up period. Three patients received other treatment modalities from the psychiatric clinic during the follow-up: two had a previously intended 2–4-week period in the psychiatric day/outpatient ward due to psychiatric comorbidities rather than OCD alone. One patient had a short inpatient treatment due to a suicide attempt. To assess the possible association of this adverse event with the B4DT, an independent psychiatrist interviewed the patient and reviewed the patient's medical records.

OCD SYMPTOMS

Mean pre-treatment Y-BOCS-SR score was 27.90 (SD=5.67), with nine patients (45%) classified with moderate OCD and 11 patients (55%) with severe to extreme OCD. Repeated measures ANOVA found a significant effect for time after B4DT (F1,24=48.14, p<.001), and more than half of the patients had a clinically relevant decrease in their OCD symptoms (≥35% improvement in Y-BOCS-SR)(*Table 2*). The contrast comparisons were made against the symptoms at pre-treatment (T0). At the 10-day follow-up (T1), 56% of the patients had responded to the treatment and 28% had reached mild symptoms/remission (F1,17=64.05, p<.001, *d*=1.91). After three months (T2), OCD symptoms stayed lower compared to the situation prior to the treatment (F1,17=48.84, p<.001, *d*=1.93): 58% had a clinically relevant response to the treatment and 30% had mild symptoms/were remitted. Post hoc comparison with Bonferroni correction was also made between T1 and T2; there were no significant changes in Y-BOCS-SR from 10-day to three-month follow-up assessment (p=.80). With one patient, OCD symptoms stayed severe to extreme despite the treatment at both follow-ups, and one patient was classified as remitted at 10-day follow-up but the symptoms increased to moderate at three-month follow-up (*Table 3*). In both cases, the intensity of the symptoms did not exceed the pre-treatment level. Regarding the suicidal patient, this serious adverse event was deemed unrelated to the intervention by the independent clinical reviewer.

Pre-treatment DOCS-SF scores (Mean=30.30, SD=5.55) were in line with Y-BOCS-SR, and the correlation between these two questionnaires was strong (r=.68, p=.001). The effect for time was also found significant for DOCS-SF (F2,33=26.54, p<.001). In test of within-subjects' post hoc contrasts, the difference between 10-day and three-month follow-up was non-significant (p=.32). However, the number of patients who had a clinically relevant response to the treatment measured with DOCS-SF varied between follow-ups; as many as 67% of the patients responded to the treatment in the 10 days after B4DT, but the number decreased to 32% after three months (*Table 2*).

To better understand differences between those who benefitted best from the B4DT and those whose symptoms had the least change, we further compared patients with the greatest relative improvement in OCD symptoms, as measured by the Y-BOCS-SR (at least 50% change from pre-treatment to three-month follow-up, n=5, range 52-72%), to patients with the smallest improvement (less than 25% change, n=5, range 4-24%). Due to the small number of patients in these groups, the statistical power of these comparisons is weak and can only be considered indicative. The only notable difference between these groups was in psychosocial functionality as measured with Work and Social Adjustment Scale (WSAS). Patients whose functional capacity was significantly reduced due to OCD before treatment had a weaker response than patients whose functional capacity was less affected by OCD (t(8)=3.26, p=.012)(*Table 4*).

SECONDARY OUTCOME MEASURES

With other symptoms, B4DT had medium to large effect based on Cohen's d (*Table 2*). In repeated measures ANOVA, within-subject effect was significant both for anxiety (F2,27=6.49, p=.008) and depression (F2,30=9.59, p=.001). Overall, 33% of the patients reached clinically significant change in anxiety (GAD-7 ≥6p) and 44% in depressive (PHQ-9 ≥5p) symptoms at 10-day follow up. At 3 months, the numbers were 42% and 32%, respectively. One patient reported clinically significant worsening (14 points change, from mild to severe) in anxiety symptoms from pre-treatment to three-month follow-up. None of the patients reported clinically significant worsening in depressive symptoms. Patients' psychosocial functioning problems and disabilities (WSAS) and sleeping difficulties (BIS) tended to decrease, and their general wellbeing (WEMWBS) to increase after B4DT. With all these three, the effect as measured by Cohen's d was stronger at 10-day follow-up than after three months. In general, patients were really satisfied with the given treatment (CSQ-8; Mean=29.17, SD=3.47, range 0-32), and in most cases, even if their symptoms had only minor improvement or had got worse. For example, the patient whose anxiety symptoms got significantly worse nevertheless gave full score on CSQ-8.

PATIENT FEEDBACK AND EXPERIENCES OF B4DT

A total of eight patients gave written open feedback at three-month follow-up. Most of them were grateful for getting into the treatment and said that they got at least some useful tools towards lives that are no longer ruled by OCD. Notes, handouts and different metaphors used for OCD helped some patients in maintaining the positive change during the independent learning phase, even when they had other difficulties in their lives or challenges with their mood. Two patients described how they felt confused or anxious about the free time they got back from OCD, and one mentioned being even angry and sad about the time lost because of the OCD before getting into the treatment.

As noted in our additional analyses, lower psychosocial functionality prior to the treatment might have been one factor that made it more difficult for a patient to benefit from the treatment. To learn more about the possible factors affecting the patients' treatability, six patients whose change in OCD symptoms were the smallest after receiving B4DT were offered a voluntary 30-45-minute feedback interview in March 2023. None of these patients declined this opportunity. In these discussions, some patients wished for better pre-treatment preparation and/or for more support from their therapist. Some reported that it was difficult to focus or fully understand the given psychoeducation in the English-speaking groups. Some patients told they realized that despite the pre-treatment preparation and help from the therapists during the 4-day treatment week, they were still unwilling to let go of all their OCD rituals.

Table 2. Means and standard deviations at each time point and change in relation to the pre-treatment situation

Variable	Range	Pre-treatment (T0), n = 20		10-day follow-up (T1), n = 18				3-month follow-up (T2), n = 19			
		Mean	SD	Mean	SD	*d*	% CRC Δ	Mean	SD	*d*	% CRC Δ
OCD symptoms											
Y-BOCS-SR	0–40	27,9	5,7	17,1	5,9	1,91	56 %	17,0	5,8	1,93	58 %
DOCS-SF	0–40	30,3	5,5	17,9	7,6	2,23	67 %	20,0	9,5	1,86	32 %
Secondary outcomes											
GAD-7	0–21	15,4	4,6	11,0	6,0	0,96	33 %	10,8	6,4	1,01	42 %
PHQ-9	0–27	14,6	6,2	10,2	6,6	0,71	44 %	10,4	6,7	0,67	32 %
WEMWBS	4–70	37,9	8,9	45,1	9,0	0,81	-	42,4	8,5	0,52	-
WSAS	0–40	25,1	8,1	17,4	10,5	0,94	-	18,7	11,3	0,78	-
BIS	0–42	20,4	9,4	14,7	8,6	0,61	-	15,7	10,5	0,50	-
CSQ-8	0–32			29,2	3,5						

Note. *GAD-7* Generalized Anxiety Disorder 7-item scale, *PHQ-9* Patient Health Questionnaire-9, *WSAS* Work and Social Adjustment Scale, *WEMWBS* Warwick-Edinburgh Mental Wellbeing Scale, *BIS* Bergen Insomnia Scale, *CSQ-8* Client Satisfaction Questionnaire-8, *d* = Effect sizes calculated with Cohen's d |(MeanT0 – MeanT1 or T2)/SDT0|), % CRC Δ = Percentage of cases with clinically reliable change from T0. For Y-BOCS-SR and DOCS-SF, this accounts for ≥35% change; for GAD-7, ≥ 6p change; and for PHQ-9 ≥ 5p change

Table 3. Comparison of clinical improvement rates in Y-BOCS-SR at pre-treatment (T0), 10-day follow-up (T1) and three-month follow-up (T2). Number of patients (%)

Variable	Pre-treatment			Total
	Mild symptoms/ remitted	Moderate	Severe to extreme	
	0 (0 %	9 (45 %)	11 (55 %)	20 (100 %)
10-day follow-up				
Mild symptoms/remitted	0 (0 %)	3 (17 %)	2 (11 %)	5 (28 %)
Moderate	0 (0 %)	6 (33 %)	5 (28 %)	11 (61 %)
Severe to extreme	0 (0 %)	0 (0 %)	2 (11 %)	2 (11 %)
Total	0 (0 %)	9 (50 %)	9 (50 %)	18 (100 %)
3-month follow-up				
Mild symptoms/remitted	0 (0 %)	4 (21 %)	2 (11 %)	6 (32 %)
Moderate	0 (0 %)	5 (26 %)	7 (37 %)	12 (63 %)
Severe to extreme	0 (0 %)	0 (0 %)	1 (5 %)	1 (5 %)
Total	0 (0 %)	9 (47 %)	10 (53 %)	19 (100 %)

Note. Y-BOCS-SR: mild symptoms/remitted = ≤13p, moderate = 14-25p, severe to extreme = 26-40p

Table 4. Comparison of patients whose relative change in Y-BOCS-SR from pre-treatment (T0) to three-month follow-up (T2) was the greatest (>50%) and the smallest (<25%)

Variable	> 50% (n=5)	< 25 % (n=5)	Test statistic	P value
	n (%) / M (SD)	n (%) / M (SD)		
Age	32.4 (8.2)	32.0 (6.3)	t8 = -0.860	.93
Women	4 (80%)	3 (60%)	$\chi^2$1= 0.476	.49
Years with OCD symptoms	20.8 (9.3)	18.0 (3.9)	t6 = -0.544	.61
Years with OCD diagnosis	9.2 (5.2)	5.8 (7.5)	t8 = -0.832	.43
OCD in the family	3 (60%)	2 (40%)	$\chi^2$1= 0.400	.53
Years of psychotherapy	10.0 (8.9)	3.3 (2.1)	t5 = -1.512	.19
Previous ERP	2 (50%)	3 (60%)	$\chi^2$1= 0.090	.76
Psychotropic medication	3 (75%)	2 (50%)	$\chi^2$1= 0.533	.47
Comorbidity	5 (100%)	4 (80%)	$\chi^2$1= 1.111	.29
Other symptoms prior to the treatment				
GAD-7	15.6 (5.0)	16.2 (5.6)	t8 = 0.178	.86
PHQ-9	11.2 (8.3)	17.8 (4.9)	t8 = 1.523	.17
WEMWBS	38.2 (9.8)	34.0 (8.5)	t8 = -0.724	.49
WSAS	18.4 (8.2)	31.8 (4.1)	t8 = 3.260	**.012**
BIS	20.8 (13.4)	23.2 (7.3)	t8 = 0.352	.73
Booster meetings/extra care during the follow-up	1 (20%)	3 (60%)	$\chi^2$1= 1.667	.20

Note. *ERP* Exposure and response prevention therapy, *GAD-7* Generalized Anxiety Disorder 7-item scale, *PHQ-9* Patient Health Questionnaire-9, *WSAS* Work and Social Adjustment Scale, *WEMWBS* Warwick-Edinburgh Mental Wellbeing Scale, *BIS* Bergen Insomnia Scale, *CSQ-8* Client Satisfaction Questionnaire-8

DISCUSSION

The aim of this pilot study was to test the feasibility of B4DT in a Finnish psychiatric care environment. Based on our results, we were able to implement the method and most of our patients reported significant decrease in their OCD symptoms after receiving B4DT. Additionally, some patients experienced decreased anxiety and depressive symptoms, and reported fewer psychosocial functioning problems, less sleeping difficulties and better general wellbeing in comparison to their situation prior to the treatment. Most of the patients were highly satisfied with the treatment. The associations we found were more modest compared to previous effectiveness and implementation studies of B4DT [8,10,14]. However, considering OCD's status as a significantly debilitating and chronic mental disorder [1], the effect sizes we observed for B4DT in this pilot study were promisingly stronger or at least comparable with effect sizes found for other treatment formats that are currently commonly used, such as therapist-administered CBT and ERP [6,32–35] or internet-delivered therapies and other technology-assisted (self-guided or assisted) therapies [32,36–38].

In most psychiatric disorders, the more chronic and treatment resistant the disorder is, the weaker prognosis for the treatability tends to be. Regarding OCD, higher level of comorbid anxiety, higher OCD severity, unemployment and being single have previously been shown to associate with worse outcome of CBT [39]. According to the developers of B4DT, duration, type or difficulty of OCD symptoms or comorbidity should not significantly weaken the possibility to benefit from the treatment if the patient's motivation and readiness for change are otherwise sufficient. Still, higher depressive symptoms and longer duration of OCD symptoms prior to the B4DT can have an impact on the odds for a long-term recovery [11]. Furthermore, the impact of B4DT has been notably high even when the therapists have been new to the treatment [9,12,14]. None of our patients reported worsened OCD symptoms after the treatment, but in comparison to those who benefitted comprehensively from the B4DT, some patients had only modest change. Regarding secondary outcomes, only one of the patients reported clinically significant worsening in anxiety symptoms, and none of the patients reported clinically significant worsening in depressive symptoms. During the follow-up, three of the patients had extra treatment, none of which seemed to be related to the B4DT, but more to the patients' other psychiatric comorbidities. However, we cannot completely exclude the possibility of adverse effects associated with the treatment.

TO WHOM AND WHEN – POSSIBLE RISK FACTORS AFFECTING THE TREATMENT OUTCOME

Several issues were raised, both in the experiences we received from the patients and in discussions with Finnish and Norwegian therapists, when reflecting the implementation process and effectiveness of B4DT. One risk factor for not benefitting from the treatment as expected might be the high impact of OCD on patients' psychosocial functioning prior to the treatment, as indicated in our supplementary analyses. Another relevant risk factor based on our experiences was lack of motivation or readiness for change. With some patients, the motivation and readiness to let go of all their OCD symptoms may easily be positively misjudged in the pre-screening process. Since many patients had numerous insufficient treatment attempts in their anamnesis, B4DT appears often as the last resort. This might feed unrealistic hopes for the effectiveness of the treatment, even without the patient's own investment, and may thus expose to disappointment if high expectations are not completely fulfilled. For some, the rapid disappearance of OCD symptoms that had dominated their lives for years, if not decades, could have been difficult to adapt to and may have brought up a wide range of mixed feelings, varying from gratitude and relief to anger and sadness, as mentioned in the open feedback we received. And for some, the transition from intensive 4-day exposure to independent training might have been too challenging due to their overall condition and level of functionality, despite the possible booster sessions. Considering the relatively large resources required by the treatment, it is essential to carefully examine for whom and in which situation B4DT should be targeted. The pre-screening skills should be thoroughly covered in the training of a new treatment team.

LEARNING AND IMPLEMENTING B4DT – THE THERAPISTS' PERSPECTIVE

The consensus in the Finnish therapist team was that the concept and main principles of B4DT may not be complicated, but implementing this new treatment into practice required tolerance for uncertainty, commitment to the training and treatment process and flexibility with the normal work routines. The pre-screening phase and building patients' trust for the treatment takes multiple meetings.

Based on the feedback from the therapist team, patients and Norwegian colleagues, sufficient time should be used for this phase of the treatment and training in it. Especially with patients whose lives have been significantly narrowed by OCD or other possible comorbid reasons, it may be necessary to think definitively about what could bring content and joy to their lives after the OCD symptoms have disappeared. This supports not only treatment motivation and maintenance of change, but also orientates patients towards a post-treatment OCD-free life. The patients' expectations for the treatment should be encouraged to be optimistic and goal orientated, yet realistic – the key for change is given during the 4-day intensive training week, but what is decisive is which choices the patient is ready to make and which changes to maintain. The final decision to participate in the treatment should always come from the patient, but if the regular B4DT format does not seem appropriate despite all the preparation, other treatment possibilities should be considered (e.g., individual B4DT intervention, or other forms of OCD treatment). Whenever in doubt, the suitability for treatment and alternative treatment options should be discussed in therapist team meetings.

Regarding the treatment weeks, we noticed that 4-day exposure is intensive not only for the patients but also for the therapists. In comparison to typical working routines in the polyclinics, with at least short breaks between meeting the patients, the therapist teams noted that during the 4-day treatment week non-stop concentration on the patients and their treatment was required, including the lunch time and meetings before and after the patients were present. In addition to the treatment weeks and direct work with the patients, the therapist team had regular meetings to review referrals, to go through pre-screened patients and to check schedules for the upcoming treatment groups. All of this requires time, resources and flexibility both from the therapist and their employer(s). In the B4DT process, many emotions were experienced together with the patients, such as struggle and doubt but also relief and amazement from the decisions patients made during the treatment. We found the close collaboration with Norwegian experts as a huge strength during the training period. The two-day seminar at the beginning of the training process shed light on the concept of the treatment. However, most of the learning took place when working with the patients and throughout the implementation process. The therapist team found that learning the LET technique and treatment protocol of B4DT were also useful for working with patients who have other anxiety-related disorders, such as social anxiety or panic disorder.

LIMITATIONS AND OPEN QUESTIONS

One of the main limitations of this observational study is the lack of a control group, and as a consequence there is an inevitable uncertainty in the possible causal relationships between B4DT and decreased OCD symptoms. We noticed a decreasing effect in most patients' symptoms after receiving B4DT. This observed improvement might, however, also be due to several factors other than B4DT, such as high motivation for change and to be treated, or spontaneous recovery or regression towards mean. The pre-screening process followed the B4DT protocol, where patient expectancies for the treatment are evaluated with CEQ and should be at least 70/100 before taking the patient into the treatment. One purpose of this is to notice possible misunderstandings regarding the treatment so that these issues can be discussed and clarified together with the patient. However, screening and reinforcing the positive expectations for the treatment among the patients can have an impact on both therapeutic alliance and ultimately even treatment outcomes [40,41].

Secondly, the sample size of our study was smaller than we hoped for, which partly reflects the challenges during the implementation and treatment process, such as variance in the flow of referrals and time available for the pre-screening process, as Finnish therapists participated in B4DT training and treatment alongside their other outpatient work. The data from the patients who did not return the questionnaires at the given time point could have been filled by using imputation. However, the patients of our study were rather heterogeneous in terms of their age, psychiatric symptoms and other background variables. Thus, we refrained from imputation for the data of these patients in order to have an honest picture of the results and our implementation process.

Another limitation of our study concerns Y-BOCS, which was based on the self-rated version. Strong correspondence has been shown between the Y-BOCS and Y-BOCS-SR; however, the self-rated version tends to generate somewhat lower scores relative to the clinically administered Y-BOCS, especially with patients with severe depression [42]. As over half of our patients had a comorbid depression, there may have been some bias in their reported OCD symptoms. However, the other questionnaire focusing on OCD symptoms (DOCS-SF) supported the finding that we were able to focus the treatment on OCD. In the future, we aim to supplement

the assessment of the patients' OCD symptoms pre- and post-treatment with the clinically interviewed Y-BOCS. This would enable the possibility to also compare the results obtained with Y-BOCS and Y-BOCS-SR.

CONCLUSIONS

We have in this feasibility study shown that B4DT can be successfully implemented in a Finnish psychiatric healthcare setting, and that most of the patients who received the treatment reported decreased OCD symptoms. However, patients' readiness and motivation to make and maintain the change appeared to be essential in terms of the effectiveness of the treatment. In order to evaluate the clinical impact, targeting and cost efficacy of this promising treatment, more studies are needed. Implementation data from outside the HUS region would support this and contribute to the national availability of the treatment. As a pilot study and with a focus on feasibility of the treatment in Finland, we did not have a control group, and this was not a randomized treatment trial. Thus, we are not yet able to reliably evaluate the effectiveness of the treatment or causality between B4DT and decreased OCD symptoms, and for this reason, the need for randomized and controlled follow-up research is important in the future. Furthermore, it would be enlightening to compare the implementation processes and results with other clinics new to the B4DT, possibly outside the Nordic countries. As the B4DT concentrated exposure treatment has successfully been adapted to other anxiety-related disorders like panic disorder and depression [43–46], the method also offers possibilities for wider application areas within psychiatry.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author Contributions

E.S., H.H. and S.S. participated in the treatment protocol as therapists. S.S. also had a role of Finnish therapist team's consultant psychiatrist. Study design and preparation for the study, including the translation process with questionnaires, was done by E.S., E.I. and S.S. The data formation and analysis were done by E.S. All the co-authors participated in the writing process by commenting the manuscript prior to submission.

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