Therapist-Guided, Internet-Delivered Cognitive-Behavioral Therapy for Adolescents With Obsessive-Compulsive Disorder: A Randomized Controlled Trial

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Objective: Cognitive-behavioral therapy (CBT) is the first-line treatment for young people with obsessive-compulsive disorder (OCD), but most patients do not have access to this treatment. Thus, innovative ways to increase the accessibility of CBT are needed. The objective of this trial was to evaluate the efficacy of therapist-guided internet-based CBT (ICBT) for adolescents with OCD.

Method: Sixty-seven adolescents (12–17 years old) with OCD were randomly assigned to a 12-week clinician- and parent-supported ICBT program (BiP OCD) or a waitlist condition. The primary outcome was the Children Yale-Brown Obsessive Compulsive Scale (CY-BOCS) administered by blinded assessors before and after the intervention. All patients were followed up 3 months after the intervention.

Results: In intention-to-treat analyses, BiP OCD was superior to waitlist on the CY-BOCS (time-by-group interaction, B = −4.53, z = −3.74, $p < .001$; Cohen's d = 0.69; 95% CI 0.19–1.18) and on most secondary outcome measurements. Patients randomized to BiP OCD also showed further improvement from post-treatment to 3-month follow-up, with a within-group pretreatment to follow-up effect size (Cohen's d) equal to 1.68 (95% CI 1.00–2.36). Patient satisfaction with BiP OCD was high. There were no relevant adverse events. Average clinician support time was 17.5 minutes per patient per week.

Conclusion: Therapist-guided ICBT is a promising low-intensity intervention for adolescents with OCD and has the potential to increase access to CBT. It might be particularly useful in a stepped-care approach, in which a large proportion of patients with moderately severe OCD could first be offered ICBT, thus freeing limited resources for more complex cases.

Clinical trial registration information—Internet-Delivered CBT for Adolescents With OCD: A Randomized Controlled Study (BiPOCD); http://clinicaltrials.gov; NCT02191631.

Key words: obsessive-compulsive disorder, cognitive-behavioral therapy, internet

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Obsessive-compulsive disorder (OCD) is a psychiatric disorder characterized by recurrent anxiety-provoking thoughts and compulsive behaviors.[1] OCD has a prevalence of 0.25% to 2% in children and adolescents[2,3] and is associated with impairments in academic, social, and family functioning.[3] Symptoms usually begin in childhood[4,5] and are associated with increased risk of future mental health problems in adulthood.[6,7] OCD often has a chronic course if untreated.[4] In consequence, early detection and treatment is crucial for long-term outcome and prevention of prolonged suffering.[8]

This article is discussed in an editorial by Drs. Kathleen Myers and Ann Vander Stoep on page 5.

Supplemental material cited in this article is available online.

Cognitive-behavioral therapy (CBT) is the first-line treatment for pediatric OCD according to international treatment guidelines.[9,10] Although pediatric OCD can be effectively treated with CBT,[11] few patients actually have access to this treatment.[4] Availability of evidence-based assessment and treatment differs regionally[12] and a substantial majority of cases are not detected.[13] Moreover, cases that are detected rarely receive adequate CBT.[14] Innovative ways to disseminate effective treatments more broadly are clearly needed to overcome those treatment barriers.

Internet-delivered CBT (ICBT) has the potential to make evidence-based treatments more accessible, because it is less restricted by temporal and geographic barriers. In ICBT, the patient works with web-based treatment materials and online homework assignments, closely resembling an online self-help book, but often supported by a clinician.[15] Although other electronic health formats have shown potential to effectively bridge geographic distances, such as

web camera-delivered CBT[16,17] and CBT delivered by telephone,[18] those formats still require booked appointments between patient and therapist and thus offer limited time- and cost-saving opportunities. Because ICBT requires only minimal, asynchronous clinician support (often a fraction of the time needed in face-to-face CBT),[19] it offers potential time- and cost-saving opportunities for therapists and health care providers. There is a growing body of evidence supporting the efficacy of ICBT in adult patient populations, with currently more than 100 randomized controlled trials (RCTs) of various psychiatric disorders.[19] Nonetheless, research on ICBT for children and adolescents has been lagging behind; a recent review of ICBT for mood and anxiety disorders in all age groups found 52 RCTs, of which only 4 involved children or adolescents.[20] A previous RCT in adolescents with anxiety disorders (excluding OCD) evaluated ICBT compared with face-to-face CBT and a waitlist control and found ICBT was superior to the waitlist (effect size 1.45) and no significant differences between ICBT and face-to-face CBT.[21]

Three previous RCTs have demonstrated efficacy of ICBT for adult OCD, with large between-group treatment effects compared with no-treatment control conditions and 47% to 60% of patients with clinical significant improvement. The mean total therapist time in ICBT was approximately 10 to 15 minutes per patient per week.[22-24] Although the efficacy of ICBT has been demonstrated in adults, the generalizability of these results to pediatric patients cannot be automatically assumed, given important developmental, cognitive, and motivational aspects that distinguish children from adults. Our research group recently developed a 12-week therapist-guided ICBT protocol for pediatric OCD including parent support and pilot tested it in an open trial with 21 adolescents.[25] Results showed significant decreases in OCD symptoms with large within-group effect sizes (Cohen's d = 2.29). The results were sustained at 6-month follow-up, and the patients rated the treatment format as overall acceptable.

Based on the encouraging results from the pilot study, the logical next step was a more rigorous evaluation of the intervention. We conducted a single-blinded RCT to evaluate the efficacy of therapist-guided ICBT for adolescents with OCD. Because most patients currently do not have access to CBT, we used a waitlist comparison and allowed for continued usual care or medication, if relevant. We also evaluated the safety and acceptability of the treatment.

METHOD

Study Design

This study was a 12-week, single-blinded, clinical RCT with patients allocated to ICBT or a waitlist control condition. Patients in the control condition were invited to cross over to ICBT after the postintervention assessment. The study was carried out at the Child and Adolescent Psychiatry Research Center in Stockholm, Sweden, which is a clinical research unit within the regional child and adolescent mental health service. Primary and secondary outcomes were measured at baseline (week 0), postintervention (after 12 weeks), and 3-month follow-up. The study was approved by the regional ethics review board in Stockholm (2014/673-31/2).

Participants

Inclusion criteria were a primary diagnosis of OCD as defined by the *DSM-5*,[1] a total score of at least 16 on the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS),[26] age 12 to 17 years old, ability to read and write in Swedish, daily access to the internet, 1 parent who could co-participate in the treatment, and for patients on psychotropic medication, a stable dose for the past 6 weeks before baseline assessment. Exclusion criteria were diagnosed autism spectrum disorder, psychosis, bipolar disorder, or severe eating disorder; suicidal ideation; ongoing substance dependence; inability to read or understand the basics of the ICBT material; completed CBT for OCD within the past 12 months (defined as $\geq$5 sessions of CBT including exposure and response prevention); and ongoing psychological treatment for OCD or another anxiety disorder.

Procedures

Patients were recruited from all over Sweden. The study was advertised in the media, mental health care services, primary care, and patient organizations. Interested families registered on the study home page (http://www.bup.se/bip) or, if located in the Stockholm area, were referred to the study by their local child and adolescent mental health unit. Figure 1 presents an overview of the study flow.

Screening procedures were carried out in 2 steps: telephone interview and in-person assessment. The initial telephone interview was conducted by a clinician with the parent or primary caregiver to make a preliminary assessment of inclusion and exclusion criteria. Potentially suitable applicants were given an appointment with a clinician who conducted a full diagnostic interview using the Mini-International Neuropsychiatric Interview for Children and Adolescents (MINI-KID)[27] and administered the CY-BOCS.[26] Participants meeting full inclusion criteria were given verbal and written information about the study. After signed consent by the primary caregiver and adolescent, the patients conducted the remaining baseline assessments and were randomly assigned to ICBT or the control condition.

Postintervention assessment with clinician-rated measurements and self-reports was conducted immediately after treatment or the waitlist period of equivalent duration. Postintervention interviews were conducted by raters blinded to randomization status. Patients in the control group were invited to cross over to ICBT immediately after the postintervention assessment and were reassessed after 12 weeks of ICBT. Follow-up measurements were performed 3 months after ICBT.

Randomization and Masking

A randomization sequence was created according to block randomization procedures (computerized random numbers; http://www.random.org) before the start of inclusion. Patients were randomized at a 1:1 ratio to ICBT or the waitlist. The allocation of patients was concealed by opaque sealed envelopes containing each allocation. Assessors at pre- and postintervention were unaware of the group allocation. At the postintervention assessment, the raters were asked to guess which group they believed the patient was randomized to and whether this was a random guess (41%), accidentally disclosed by the patient (3%), or due to clinical improvement (56%). Blinded raters' guesses were correct in 69.7% of cases and a significant predictor of group allocation ($z = 3.14$, $p = .002$). However, raters were not significantly better than chance in detecting group allocation when clinician-rated improvement (Clinical Global Impression–Improvement [CGI-I]) was held as a covariate to control for OCD symptom changes as a reason for correct guesses ($z = 1.46$, $p = .144$).