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ORIGINAL ARTICLE

Effectiveness of online group cognitive behavioral therapy for adolescents with obsessive-compulsive disorder: a pilot study

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Objective: To evaluate the effectiveness of online group cognitive behavioral therapy (CBT) based on the CAMALEO TOC manual in the treatment of adolescents with obsessive-compulsive disorder (OCD).
Methods: This is a quasi-experimental study with a single-group pretest-posttest intervention. Over a 12-week period, 11 adolescents aged 11 to 17 years with OCD participated in weekly online group CBT sessions based on the CAMALEO TOC manual. We used several assessment tools, including the Children's Yale-Brown Obsessive-Compulsive Scale to assess the severity of OCD symptoms, the Family Accommodation Scale for Obsessive-Compulsive Disorder-Interviewer-Rated to measure family accommodation, the Children's Depression Inventory to assess depression symptoms, the Revised Children's Manifest Anxiety Scale to assess anxiety, and the Multidimensional Students' Life Satisfaction Scale to measure satisfaction with life.
Results: OCD symptoms decreased significantly (d = -1.55) after online group CBT, and a strong effect size (d = -1.03) was found for family accommodation. After controlling for variables (e.g., engagement in psychotherapeutic treatment, medication use, or psychiatric comorbidities), no significant differences were found for OCD symptoms and family accommodation scores. In addition, there was insufficient evidence to support the effectiveness of online group CBT in reducing symptoms of depression or anxiety or improving overall quality of life.
Conclusion: Our study demonstrates the feasibility of short-term online group CBT as an effective therapeutic approach for adolescents with OCD.

Keywords: Youth; treatment response; family involvement; family accommodation; group cognitive-behavioral therapy

Introduction

Obsessive-compulsive disorder (OCD) is characterized by persistent, unwanted intrusive thoughts, images, or impulses ((i.e., obsessions) as well as repetitive behaviors or mental actions (i.e., compulsions).[1] Structured epidemiologic studies have estimated the prevalence of OCD in children and adolescents to be between 0.25 and 4%, with higher rates observed in older age groups.[2,3] A study conducted in southern Brazil with adolescents aged 14 to 17 years found a prevalence of 3.3%.[4] An even higher prevalence of up to 4.2% was reported in a recent study with students from a Turkish university.[3]

The main manifestations of OCD are obsessions and/or compulsions that cause distress and interfere with daily activities.[5] The fluctuation in symptom intensity in adolescents, coupled with the chronic nature of OCD,[6] leads to significant functional impairment in multiple domains, including home, school, and social life.[7] OCD symptoms also disrupt family dynamics, thus requiring adjustments by family members to accommodate the patient's symptoms and demands and sometimes even supporting the performance of rituals and compulsive behaviors. Known as family accommodation, this phenomenon also includes the distress and stress experienced by affected family members.[8] A previous meta-analysis suggested a positive and moderate association between the severity of OCD symptoms and family accommodation scores.[9] However, studies typically assess only the correlation between family accommodation and OCD severity,[9,10] with only a few studies examining the impact of their interventions on family accommodation scores.[11,12]

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The likelihood of remission of OCD symptoms without treatment is extremely low, which underscores the need for therapeutic intervention. For children and adolescents with OCD, both cognitive behavioral therapy (CBT) and psychopharmaceuticals are effective in reducing OCD symptoms.[13] CBT is considered the first-line therapy for children and adolescents with mild to moderate OCD,[14] as it has been shown to significantly improve patients' quality of life and is considered superior to pharmacotherapy alone.[15] As a second-line option, a combination of CBT and pharmacotherapy is recommended, particularly in cases of moderate-to-severe symptoms or in the presence of comorbid depression.[16]

Group CBT, a modality of CBT, has been shown to effectively reduce OCD symptoms.[17] A recent systematic review and meta-analysis[18] identified several group CBT manuals, each with distinct intervention characteristics and a variety of therapeutic approaches and activities used during sessions. Notably, most of these protocols included parental participation in group CBT sessions, underscoring the importance of family accommodation during treatment. However, the study highlighted the lack of available manuals in Brazil, which hinders the treatment of adolescents with OCD in the country.

A previous meta-analysis examined the effectiveness of both individual and group CBT in the treatment of children and adolescents with OCD. The authors reviewed 25 randomized controlled trials (RCTs) and found that all of them used only face-to-face interventions, whereas only two of them used group CBT.[19] Although there are current interventions using online individual CBT for the treatment of adolescents with OCD,[20] to the best of our knowledge, there are no group CBT manuals available for the online treatment of children and adolescents with OCD, neither in Brazil nor in any other country. To fill this gap, a comprehensive Brazilian manual (the CAMALEO TOC) was developed in response to the need for a guiding framework to facilitate the implementation of group CBT in Brazil.[21] Therefore, the present study aimed to evaluate the effectiveness of an online manualized group CBT intervention in the treatment of adolescents with OCD.

Methods

Design

This is a quasi-experimental study with single-group pretest-posttest online group CBT for the treatment of adolescents with OCD.[22] Initially, all participants underwent assessments to confirm the diagnosis of OCD and potential psychiatric comorbidities. They completed questionnaires assessing the main outcomes of the study. The participants then attended group CBT over a 12-week period. The present study was conducted during the COVID-19 pandemic, which required adaptation of the protocol to an online format.

Participants

From July to September 2021, 31 adolescents (aged 10 to 19 years) were recruited by convenience sampling with the use of digital flyers at Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA), social media advertisements, and snowball sampling. The complete participant screening process is illustrated by a flowchart in Figure 1.

Eligibility criteria were assessed in a multistep process. First, participants were screened for OCD and comorbidities by a psychologist or psychiatrist using the DSM-5. This assessment was conducted during an online appointment via Google Meet, involving both the adolescent and their parents. In addition, during this appointment, the mental health professional provided details about the study, such as its duration, format, and time commitment. Three participants declined to participate at this stage without further explanation. The remaining 28 adolescents and their parents were assessed for the study outcome in a second online clinical interview. In this interview, a structured questionnaire developed by the research team about sociodemographic and clinical data, the Family Accommodation Scale for Obsessive-Compulsive Disorder – Interviewer-Rated (FAS-IR),[23,24] and the Multidimensional Students' Life Satisfaction Scale (MSLSS) were administered.[25] OCD symptoms were assessed by using the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS),[26] while depression and anxiety were assessed using the Children's Depression Inventory (CDI)[27,28] and the Revised Children's Manifest Anxiety Scale (RCMAS), respectively.[29]

Inclusion criteria for this study were: 1) a diagnosis of OCD according to DSM-5 criteria; 2) age between 10 and 19 years; 3) parental or guardian consent for adolescent participation in the study (applicable to adolescents aged $\leqslant$ 17 years); 4) baseline CY-BOCS scores $\geqslant$ 14[30,31]; and 5) no recent initiation of new psychotropic medications (i.e., within $\leqslant$ 2 months) or plans to change medications during the intervention period. Exclusion criteria were: 1) severe mental health comorbidities or conditions (e.g., severe major depression, panic disorder, severe social phobia, conduct disorder, alcohol or other psychoactive substance abuse, severe affective bipolar disorder, severe anorexia nervosa, severe autism, current suicide risk, psychotic symptoms); 2) cognitive impairment (e.g., intellectual disability or organic mental disorder); 3) OCD attributed to traumatic brain injury, rheumatic fever, tumor, or stroke; and 4) three absences during the intervention period.

All adolescents who did not complete the treatment (i.e., completed only the pretest measures) were considered dropouts, and their data were excluded from the analysis. Table 1 summarizes the sociodemographic and clinical characteristics of the 11 adolescents who completed the treatment. This sample size is similar to that of previous pilot studies examining the efficacy of group CBT in adolescents.[32,33] In addition, we determined a post-hoc statistical power of 0.93 based on a sample size of 11 adolescents and an effect size of 1.03.

Although this study is not an RCT, efforts were made to reduce potential research bias by controlling for certain variables. For example, adolescents who were on medication were asked to provide their psychiatrist's contact information as well as the name and dose of the medication.

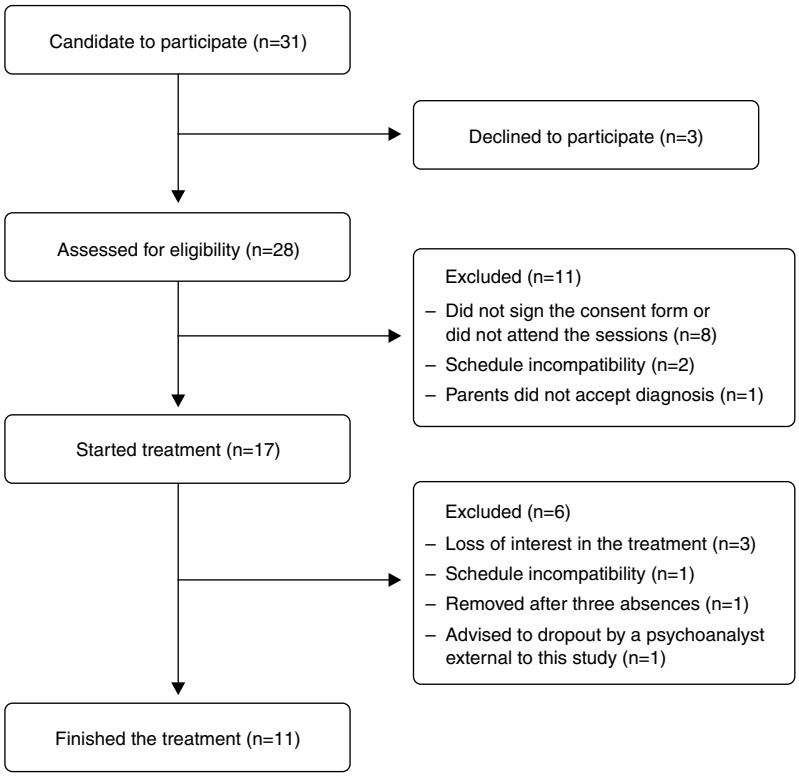

Figure 1 Flowchart of participants.

Table 1 Demographic and baseline clinical characteristics of participants

Variable	Group CBT (n=11)
Female	7 (63.6)
Age, mean (SD)	14.18 (1.72)[†]
Self-reported skin color	10 (91.0)
Previous psychotherapy	10 (91.0)
Current psychotherapy	3 (27.3)
Current pharmacological treatment	9 (81.9)
Any comorbidity	6 (54.6)
Number of comorbidities, median (IQR)	1 (1.5)
Comorbidities – Diagnosis	
Depression	3 (27.3)
Anxiety	3 (27.3)
Mild autism	2 (18.2)
ADHD	1 (9.1)
CY-BOCS, mean (SD)	28.63 (7.67)
CDI, mean (SD)	18.00 (8.86)
RCMAS Total, mean (SD)	16.09 (5.48)
RCMAS Physical, mean (SD)	4.72 (2.10)
RCMAS Worry, mean (SD)	6.36 (2.69)
RCMAS Fear, mean (SD)	5.00 (2.32)
RCMAS Lie, mean (SD)	1.09 (1.58)
FAS-IR, mean (SD)	15.00 (9.84)
MSLSS, mean (SD)	118.81 (25.25)

Data presented as n (%), unless otherwise specified.
ADHD = attention deficit hyperactivity disorder; CDI = Children's Depression Inventory; CY-BOCS = Children's Yale-Brown Obsessive-Compulsive Scale; FAS-IR = Family Accommodation Scale for Obsessive-Compulsive Disorder - Interviewer-Rated; CBT = cognitive behavioral therapy; IQR = interquartile range; MSLSS = Multidimensional Students' Life Satisfaction Scale; RCMAS = Revised Children's Manifest Anxiety Scale.
[†] Ages 11 to 17 years.

This allowed the research team to control the maintenance of the dose throughout the study. In addition, three adolescents received psychotherapy during the intervention, but none of these therapies was CBT-based, and the adolescents had been in therapy for at least 10 months prior to participating in group CBT.

Therapists

The intervention was applied by two clinical psychologists (CFB and RCSA). CFB holds a PhD in health sciences and specializes in OCD and CBT in children and adolescents. CFB was the lead psychotherapist in all group CBT sessions. RCSA, who holds a master's degree in health sciences, specializes in CBT, and has extensive experience with OCD was the co-therapist in all group CBT sessions. Four other clinical psychologists monitored all online sessions to assess therapist performance and ensure adherence to the goals outlined in the CAMALEO TOC manual.

Intervention

After eligibility screening, the age range of the sample who started and completed treatment was 11 to 17 years. Therefore, group CBT sessions were conducted with adolescents grouped into two age categories: 11 to 14 years and 15 to 17 years. Each group consisted of four to seven participants who received 12 weekly sessions of 120 minutes each. Before and after treatment, all participants were assessed by three independent evaluators

who were either psychologists or psychiatrists. The group CBT therapist and co-therapist were blinded to the participants' instrument scores until the end of the intervention. The group CBT intervention developed by the study team was based on the CAMALEO TOC manual.[21] "TOC" stands for OCD in Brazilian Portuguese. "CAMALEO" is derived from the word chameleon, as OCD can manifest itself in different forms and symptoms. The manual is named after a character created by an illustrator to symbolize the different dimensions of OCD symptoms. More information about the manual and its illustrations is available elsewhere.[21] The elaboration of the group CBT CAMALEO TOC manual was performed in six stages: 1) systematic review and meta-analysis to search manuals with evidence of effectiveness[18]; 2) appraisal of existing manuals; 3) preparation of the new manual based on the structure of the previous ones (e.g., number and length of sessions, intervention techniques, and psychoeducational topics); 4) new manual expert assessment; 5) assessment of the manual by adolescents; 6) adjustments according to expert and adolescent assessments. The systematic review found that six group CBT manuals used in the treatment of adolescents with OCD, but none of them are available in Brazil. A new manual has therefore been developed for the implementation of group treatments tailored to Brazilian adolescents with OCD.[21] Previous studies have demonstrated the effectiveness of group CBT in the treatment of adolescents with OCD.[18,20,32-36] In addition, group CBT can help reduce waiting lists and provide early treatment to adolescents with OCD.[32,34-36] The CAMALEO TOC manual has 130 pages, divided into 12 sessions, and is designed for the treatment of adolescents aged 10 to 19 years.[21]

The content validity of the CAMALEO TOC manual was assessed by five mental health professionals specializing in adolescents with OCD, who assessed CBT techniques for OCD treatment, and by seven adolescents, who provided feedback on the language used. Neither the professionals nor the adolescents involved in assessing content validity participated in any phase of the study intervention. The manual showed excellent applicability and strong evidence of content validity in terms of both adequacy (*Finn* = 0.98 mean score = 4.0) and relevance (*Finn* = 0.99 mean score = 4.0), rated on a 0-4 scale. Further details on the development of the CAMALEO TOC, its content validity and the theme/objective of each session can be found elsewhere.[21]

Main treatment themes included 1) psychoeducation for both adolescents and their guardians, focusing on OCD (e.g., obsessions and compulsions), CBT (e.g., cognitive model), and strategies for improving interpersonal and family relationships; 2) CBT interventions for OCD (e.g., exposure and response prevention [ERP], identification of avoidance situations, and relapse prevention). Each group participant developed their own treatment plan and symptom list, while the assigned homework topic was the same for all participants and was reviewed at the beginning of each session (except the first and last). The first two sessions involved adolescents and their parents or guardians to provide treatment information and assess family accommodation. Sessions 3 through 12, which lasted 90 minutes, were conducted with the adolescents, followed by the final 30 minutes with both the guardians and the adolescents. All sessions were conducted online via Google Meet.

Measures

Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS)

The CY-BOCS is composed of 10 items designed to assess the severity of OCD symptoms, including both obsessions and compulsions, in the past week and over the lifetime. The total score derived from the sum of these items ranges from 0 to 40, with scores equal to or greater than 14 indicating clinically significant levels of OCD.[30,31] The instrument has satisfactory internal consistency (α = 0.87-0.90).[26] It was developed for use with children and adolescents aged 4 to 18 years and allows for parental assistance when needed (e.g., for young or highly anxious children) to complement the child's responses.[26,31] In this study, the CY-BOCS served as the main measure of effectiveness.

Children's Depression Inventory (CDI)

The CDI is a 27-item, self-administered scale designed to assess affective, cognitive, and behavioral symptoms of depression in children and adolescents aged 7 to 17 years. Responses to items are scored on a 0 to 2 scale, where 2 represents the highest intensity. The total score is calculated by summing the item scores, resulting in a range of 0 to 54. Scores $\geqslant$ 15 indicate clinically significant levels of depression.[27,36] The original version[27,28] of the CDI shows good evidence of internal consistency (α = 0.80). The inventory was adapted and validated in the Brazilian population,[37] showing good internal consistency (α = 0.85).[38]

Revised Children's Manifest Anxiety Scale (RCMAS)

The RCMAS, also known by its trade name "What I Think and Feel," is a 37-item scale designed to assess anxiety in children and adolescents aged six to 19 years. Participants respond to items dichotomously, where 1 indicates "yes" and 0 indicates "no." However, nine items are used to identify instances of "faking good" (i.e., to assess the reliability of the total anxiety score). The lie score ranges from 0 to 9. The validity of the results is questionable when the lie score and the total anxiety score are more than two SDs above their respective means. The sum of the anxiety items results in a total score ranging from 0 to 28. Both the original[29] and the Brazilian[39] versions of the RCMAS have the same internal consistency index (α = 0.85). Scores can be presented as a total anxiety score or as subscales (i.e., lie, corrected lie scale, physiological anxiety, worry/oversensitivity, social concerns/concentration subscales). Both total and subscale scores were computed and reported.

Multidimensional Students' Life Satisfaction Scale (MSLSS)

The original version of the MSLSS has 40 items, divided into five domains (family, friends, school, living environment, and self), and has excellent internal consistency (α = 0.92)[25] to assess satisfaction with life in children and adolescents. As part of the cross-cultural adaptation process, a new domain (compared self) was added to the Brazilian version of the MSLSS, resulting in a total of 50 items. This adaptation was considered necessary because the original five domains were found to be insufficient to capture the Brazilian cultural reality, resulting in a low internal consistency index (α = 0.50). The final Brazilian version of MSLSS showed good internal consistency (α = 0.84).[40] Recently, an abbreviated version of the MSLSS composed of 32 items was validated in Brazil (used in this study) and demonstrated internal consistency similar to the original version (α = 0.90). All versions of the scale use a Likert scale from 1 to 5, with 1 being "not at all" and 5 being "very much."[25,40,41]

Family Accommodation Scale for Obsessive-Compulsive Disorder – Interviewer-Rated (FAS-IR)

The FAS-IR assesses family accommodation in children and adolescents with OCD and consists of two steps: 1) assessment of the child's symptoms by parents and/or other family members based on a list of symptoms adapted from the CY-BOCS (15 dichotomous items); 2) assessment of the parent's accommodation behavior through 19 questions (e.g., observing or waiting for the patient's rituals to end) rated on a Likert scale ranging from 0 to 4, where 0 indicates "none" and 4 indicates "every day." The original version of the FAS-IR has good internal consistency (α = 0.82).[23,24] The scale was adapted and validated for use with individuals over 18 years of age in Brazil by Gomes et al.[42] and showed evidence of internal consistency similar to the original version (α = 0.80).

ACT/CBT Therapist Adherence and Competence Scale (DUACRS)

We used the competence subscale of the DUACRS to assess the competence of the therapist and co-therapist.[43] The scale assesses five competence attributes: 1) knowledge of treatment; 2) skill in delivering treatment; 3) appropriate application of treatment components within the session context; 4) rapport with client; and 5) overall performance. Each attribute was rated by four psychologists specializing in CBT using a five-point Likert scale (1 = poor; 5 = excellent). All psychologists received a copy of the CAMALEO TOC manual and were briefed on the thematic focus and objectives of each session during the competency assessment.

Data analysis

Data analysis was performed using SPSS version 23 and JASP 0.17.2 by a statistician (NOC) who was not involved in any other phase of this study (e.g., intervention, participant outcome assessment, or evaluation of therapist performance). Therapist competence was estimated by calculating the simple mean of the raters' scores. The adequacy of the sample for parametric testing was assessed using the Shapiro-Wilk test. Treatment outcomes were examined using repeated measures analysis of variance (ANOVA) comparing pretest and posttest scores. Effect sizes, indicated by eta-squares (η^2) and Cohen's *d*, were reported along with post-hoc analyses,[44] with Holm-corrected p-values. Finally, analyses of covariance (ANCOVAs) were performed to examine the potential impact of comorbidities, medication use, or concurrent psychotherapy attendance during our intervention on OCD symptoms and family accommodation. The significance level was set at $p \leqslant 0.05$.

Ethics statement

This research was approved by the ethics committee of UFCSPA under CAAE number 30918720.9.0000.5345.

Results

Sample characteristics

A total of 31 adolescents with OCD and their legal guardians expressed interest in participating in this study. Seventeen (54.8%) began treatment, but only 11 (35.5%) completed it, resulting in a dropout rate of 35.3%. Participants had a mean age of 14.1 years (SD = 1.72), and seven (63.6%) were female. Regarding self-reported skin color, 10 (91%) identified as white and one (9%) identified as brown. Prior to study inclusion, 10 adolescents (91%) had received psychotherapy. During the study intervention, three (27.3%) were still receiving psychotherapy, and nine (81.9%) were receiving pharmacological treatment. In addition, six adolescents (54.6%) had at least one psychiatric comorbidity.

Therapist competence

Competence scores represent the mean ratings of four psychotherapists who observed the 12 group CBT sessions. The therapist received a mean competence score of 4.99 (SD = 0.008), while the co-therapist received a mean score of 4.85 (SD = 0.27). These scores indicate a high level of competence for both therapists.

Treatment outcomes

Pretest and posttest scores were submitted to repeated measures ANOVAs to assess the main effects of within-subject outcomes. Changes from pretest to posttest for each outcome are presented in Table 2, including means and SDs. In addition, post-hoc test results are presented. At pretest, participants reported significant levels of OCD, depression, and anxiety symptoms. Despite this, adolescents reported high levels of satisfaction with life, while legal guardians reported low levels of family accommodation.

Table 2 Means, SDs and post-hoc tests of outcome measures at pretest and posttest moments

Outcome	Pretest (n=11)	Posttest (n=11)[†]	Post-hoc				
			Mean difference	SE	*t*	Cohen's *d*	P_{holm}
CY-BOCS	28.63 (7.67)	17.09 (7.24)	11.54	1.61	7.15	1.55	< 0.001*
FAS-IR	13.00 (9.95)	5.12 (4.25)	7.87	2.99	2.63	1.03	0.034**
CDI	19.22 (9.43)	15.89 (8.13)	3.33	2.07	1.60	0.38	0.147
RCMAS Total	16.68 (5.70)	15.68 (3.32)	1.00	1.26	0.79	0.21	0.450
RCMAS Physical	4.67 (2.34)	4.11 (1.27)	0.57	0.53	1.05	0.29	0.325
RCMAS Worry	6.78 (2.53)	6.89 (1.17)	-0.11	0.63	-0.17	-0.06	0.865
RCMAS Fear	5.22 (2.49)	4.67 (2.12)	0.56	0.67	0.83	0.24	0.430
RCMAS Lie	1.33 (1.66)	2.33 (2.12)	-1.00	0.69	-1.45	-0.52	0.184
MSLSS	117.00 (27.32)	115.11 (27.22)	1.89	4.94	0.383	0.07	0.712

CDI = Children's Depression Inventory; CY-BOCS = Children's Yale-Brown Obsessive-Compulsive Scale; FAS-IR = Family Accommodation Scale for Obsessive-Compulsive Disorder – Interviewer-Rated; MSLSS = Multidimensional Students' Life Satisfaction Scale; RCMAS = Revised Children's Manifest Anxiety Scale; SE = standard error; *t* = post-hoc statistic.
[†] Two participants responded only the CY-BOCS at posttest; therefore, the n for other outcomes is 9. Another legal guardian did not answer the FAS-IR; therefore, the n for this outcome is 8 at posttest and 10 at pretest.
* $p \leqslant 0.001$; ** $p \leqslant 0.05$.

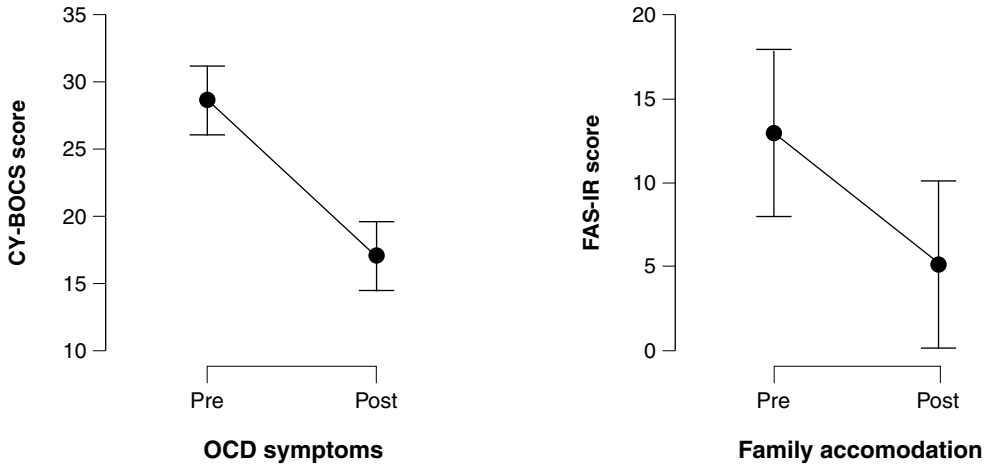

Figure 2 Results of repeated measures analysis of variance (ANOVA): estimated means with 95%CI bars are displayed for obsessive-compulsive disorder (OCD) symptoms and family accommodation at pretest and posttest. CY-BOCS = Children's Yale-Brown Obsessive-Compulsive Scale; FAS-IR = Family Accommodation Scale for Obsessive-Compulsive Disorder – Interviewer-Rated

ANOVA indicated significant changes in OCD severity ($F[1,10] = 51.14$, $p < 0.001$, $\eta^2 = 0.83$) and family accommodation scores ($F[1,7] = 6.93$, $p < 0.034$, $\eta^2 = 0.50$). Post-hoc analysis demonstrated a statistically significant reduction in OCD symptoms (mean difference = 11.54, standard error [SE] = 1.61, $t_{(7.15)}$, d = -1.55, $P_{holm} < 0.001$) and family accommodation (mean difference = 7.87, SE = 2.99, $t_{(2.63)}$, d = -1.03, P_{holm} = 0.034) at posttest compared to pretest (Figure 2). ANOVAs and post-hoc analysis indicated no significant changes in depression, anxiety (total and subscales), or satisfaction with life scores between pretest and posttest ($p > 0.05$). ANCOVAs revealed no significant differences in OCD symptoms and family accommodation concerning current psychotherapy ($p = 0.34$, $\eta^2 = 0.048$; $p = 0.61$, $\eta^2 = 0.038$), medication use ($p = 0.87$, $\eta^2 = 0.002$; $p = 0.16$, $\eta^2 = 0.31$), or comorbidities ($p = 0.85$, $\eta^2 = 0.002$; $p = 0.40$, $\eta^2 = 0.11$).

Discussion

This study provides preliminary evidence for the effectiveness of the CAMALEO TOC online intervention as a potential treatment for adolescents with OCD. The observed changes in CY-BOCS scores indicate a big reduction in clinical OCD symptoms, from moderate to low severity. These results are consistent with previous face-to-face studies using group CBT to treat OCD in children and adolescents.[11,20,35,36,45] Furthermore, our effect size (d = -1.55) is similar to the average effect size reported in a previous meta-analysis (d = -1.32) evaluating group CBT across six quasi-experimental studies and two RCTs targeting OCD treatment in adolescents.[20] Thus, preliminary evidence suggest that the CAMALEO TOC online intervention is as effective as other manualized group interventions delivered in face-to-face settings for the treatment of OCD in adolescents. In addition,

CAMALEO TOC shows comparable efficacy to online interventions using individual CBT for the treatment of OCD in adolescents.[46,47]

Our online intervention was also effective in reducing family accommodation (d = -1.03), demonstrating greater efficacy than previous face-to-face group CBT interventions (d = 0.65, d = 0.72).[11,12] In the study by Lavell et al.,[12] although the difference in effect size was moderate to large, it did not reach statistical significance (p = 0.060). Conversely, while previous studies using both face-to-face group CBT[11,36] and online individual CBT for OCD[46] have shown efficacy in reducing comorbid symptoms of anxiety and depression, our intervention did not produce similar results. Possible explanations for this discrepancy include the relatively low depression and anxiety scores of most participants at baseline and the limited sample size.

Furthermore, although our sample had low quality of life scores, the CAMALEO TOC intervention did not improve these scores. While a previous meta-analysis suggests that adolescents with OCD generally experience a reduced quality of life compared to healthy controls,[48] most previous studies using group CBT interventions did not evaluate whether their manuals resulted in improved quality of life.[11,32-36,45,49,50] In addition, recent evidence suggests a global decline in adolescent quality of life during the COVID-19 pandemic,[51,52] which may also account for the lack of change in our participants' scores. Furthermore, similar to quality-of-life assessments, therapist competence is not typically assessed in other manuals. Therefore, our study stands out as one of the few to assess both therapist and co-therapist competence for each session.[36]

The present study is valuable because it contributes to advancing the treatment of OCD by introducing a novel intervention/manual tailored for Brazilian adolescents. To the best of our knowledge, this is the first study to demonstrate the effectiveness of an online group CBT intervention for the treatment of OCD in adolescents. Nevertheless, there are some limitations.

First, this study lacks a RCT design with a control group or comparison with other group CBT manuals, mainly because of the unavailability of other group CBT manuals in Brazil. Therefore, future research could explore comparisons with other effective treatments, such as individual CBT and pharmacotherapy. In addition, it would be useful to investigate whether a combination of the group CBT CAMALEO TOC manual and medication treatment produces a stronger effect than the treatment group alone. Cross-cultural adaptations of other group CBT manuals for the Brazilian population and adaptation of CAMALEO TOC for use in other countries are also recommended.

Second, a significant dropout rate was observed between participants who attended the first session and those who completed the treatment (35.3%). A previous meta-analysis evaluated the dropout rates of 25 RCTs that used face-to-face CBT interventions for the treatment of OCD in children and found a mean dropout rate of 12.7%.[19] Thus, the dropout rate of our online intervention is greater than that of most previous face-to-face studies. However, evidence suggests that 31% of participants drop out of online treatments for psychopathology.[53] Some reasons associated with high dropout rates in online interventions include challenges in finding an appropriate and private setting to participate in sessions, Internet connectivity issues, and the risk of distraction during sessions (e.g., engaging in other computer tasks).[53,54] Unfortunately, we did not control for these variables in our intervention. Thus, although the dropout rate in our study may be consistent with the average found in the literature for online interventions, our data should be interpreted with caution, and further studies are needed to replicate our findings in other samples. These studies should also consider controlling for variables, such as assessing the stability of participants' Internet connection and the availability of a private, quiet space to participate in online sessions.

Third, preliminary results suggest that the CAMALEO TOC intervention was not effective in improving quality of life or reducing symptoms of anxiety and depression. Therefore, further studies should examine whether this manual can reduce symptoms of anxiety and depression in other samples. In addition, several previous studies did not assess the impact of their interventions on quality of life.[11,32,34,35,44,48,49] Therefore, further research should investigate this hypothesis and compare the results with those of CAMALEO TOC. This is particularly important in view of previous evidence suggesting that individual CBT significantly improves the quality of life of children[55] and adults with OCD.[56]

Finally, the CAMALEO TOC intervention was originally designed for face-to-face intervention, but was adapted to the online format because of the constraints imposed by the COVID-19 pandemic. As a result, the effectiveness of the intervention could not be compared across delivery formats (i.e., online vs. face-to-face). We hypothesize that the face-to-face intervention will be equally effective and may even have a lower dropout rate. Future studies should investigate this hypothesis and conduct follow-up assessments.

Although this pilot study has limitations, it does demonstrate the feasibility and potential of short-term online group CBT as an effective treatment for OCD in adolescents. The dissemination of an online manualized treatment protocol (e.g., CAMALEO TOC) holds promise for adolescents and families struggling with OCD. In addition, implementing a group CBT intervention can help reduce waiting lists for mental health services.[57,58] In Brazil, a previous study had already advocated the use of group CBT in public health services[34]; however, no standardized manual was available for the Brazilian population. To the best of our knowledge, CAMALEO TOC is the first standardized manual tailored for the treatment of adolescents with OCD in Brazil. We anticipate that CAMALEO TOC will continue to be refined and evaluated through further studies.

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Disclosure

The authors report no conflicts of interest.

Author contributions

CFB: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Validation, Writing – original draft, Writing – review & editing.
NOC: Data curation, Formal analysis, Investigation, Methodology, Writing – original draft.
SRMX: Investigation, Writing – original draft.
YAF: Project administration.
All authors have read and approved of the final version to be published.

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