



Sustained Treatment Gains in Intensive Virtual and In-Person CBT for Pediatric Anxiety Disorders and OCD

Jacqueline B. Sperling¹ · Abigail M. Stark¹ · Esther S. Tung¹ · R. Meredith Elkins¹

Accepted: 26 June 2024

© The Author(s), under exclusive licence to Springer Nature Switzerland AG 2024

Abstract

Purpose This study examined the efficacy and sustainability of treatment gains achieved through an intensive group- and family-based outpatient CBT program for youth ($N=63$, ages 8–19) with anxiety disorders or obsessive-compulsive disorder (OCD) that provided interventions through a hybrid of in-person and primarily telehealth formats.

Findings Results indicated significant reductions in anxiety and depression symptoms and improved functional impairment not only between admission and discharge, but also that these reductions were maintained at the three-month follow-up assessment. Findings suggest that intensive outpatient group- and family-based CBT that integrates telehealth can lead to lasting improvements in pediatric anxiety and OCD symptoms beyond discharge.

Summary Intensive group- and family-based outpatient CBT treatment that included telehealth sessions demonstrated improvements in anxiety and depression symptoms as well as functional improvement, and these gains were maintained three months later. This treatment format may be a way to increase access to evidence-based care, as the virtual format component may reduce travel burdens, and a briefer duration of intensive treatment may create available openings for families in need sooner.

Keywords Cognitive behavioral therapy · Intensive treatment · Children · Anxiety disorders · Obsessive-compulsive disorder · Telehealth

Introduction

More than one-third of children will meet criteria for an anxiety disorder before adulthood [1]. If not addressed, anxiety disorders have been linked to long-term consequences, such as a negative impact on interpersonal relationships, affective disorders and complications during pregnancy and childbirth, financial struggles, unfavorable outcomes in education and occupation, and somatoform disorders [2]. Obsessive-Compulsive disorder (OCD) affects about 2–3% of youth and has been associated with impairment that persists into adulthood if not treated [3*]. Given the prevalence of and long-term impairment associated with anxiety

disorders and OCD, effective treatments with sustainable impact are needed.

Cognitive behavioral therapy (CBT) is an evidenced-based treatment for both pediatric anxiety disorders and OCD; CBT is a “well-established” treatment for pediatric anxiety disorders [1] and is “probably efficacious” for pediatric OCD [3*]. In particular, research has demonstrated that group-based CBT is the most effective format of this treatment for anxiety [4]. Even outside of research settings, a meta-analysis of CBT for pediatric internalizing disorders, that included anxiety disorders and OCD, found that CBT was effective within community and clinical settings, which supported the external validity of the treatment [5]. Research also has found that the benefits from individual and group-based CBT for pediatric anxiety disorders and individual and group-based family-focused CBT for pediatric OCD can be sustained one year later [6, 7]. Furthermore, a meta-analysis of pediatric CBT for internalizing disorders found that treatment gains were sustained at follow-up assessments up to slightly more than seven years [i.e., 89 months;

✉ Jacqueline B. Sperling
jsperling@mclean.harvard.edu

¹ Department of Psychiatry, McLean Hospital/Harvard Medical School, 799 Concord Ave, Cambridge MA 02138, US

8]. Taken together, data strongly suggest that CBT for pediatric anxiety and OCD confers short and long-term clinical improvements when delivered through both individual and group-based settings.

Treatment for anxiety disorders and OCD expands upon the traditional CBT that focuses on techniques that address the connections among thoughts, feelings, and behaviors by incorporating exposure and response prevention (ERP). ERP involves children gradually facing their fears and learning that the outcomes either were not as challenging as expected or at least that they could tolerate the outcomes, the inhibitory learning model [9]. A meta-analytic review examined specific factors contributing to sustained gains, such as parental involvement, goal-setting efforts, relapse prevention techniques, and booster sessions. Results demonstrated that only parental involvement significantly predicated both post-treatment and follow-up treatment effects several years post-discharge [8]. Research on parental involvement in CBT has noted that parent training techniques can help transfer control from the provider to parent and to help parents manage their own distress. In turn, parental involvement can improve children's functioning [10]. Given the well-established interdependence of parent and child mental health concerns [11], including caregivers during treatment is critical to optimizing treatment gains over time. Therefore, this study included caregivers in treatment.

Although CBT is firmly ensconced as the gold standard treatment for pediatric anxiety and OCD, it still is not meeting the needs of all youth with anxiety and OCD. Weekly CBT only predicted symptom remission for about half of the youth who received the treatment [12*, 13]. Researchers have noted some benefits of an alternative format of treatment, intensive treatment, compared to weekly CBT, such as greater initial remission and improvement rates for pediatric OCD and anxiety disorders treatment [14, 15*]. Researchers have hypothesized that intensive treatment offers an approach that provides treatment to more individuals due to a briefer time between admission and discharge than in traditional weekly therapy, leading to more provider availability for new patients [14]. Intensive treatments in research settings for youth with panic disorder, agoraphobia, OCD, separation anxiety disorder, and specific phobia(s) have been effective [14, 15*, 16, 17, 18, 19], and intensive treatment in a clinical setting has demonstrated reductions in children's anxiety, functional impairment, and comorbid depression symptoms [20]. Furthermore, intensive treatment was found to better address comorbid depression symptoms when compared to weekly treatment [21].

In addition to investigating intensive treatment's immediate impact at the end of treatment, it also is important to examine the sustainability of the treatment's effects. When investigating how intensive treatment fares post-discharge, research found that intensive family-based CBT for pediatric OCD produced similarly sustained gains when compared to weekly family-based CBT at a three-month follow-up assessment [15*]. A meta-analysis of intensive CBT for pediatric anxiety disorders found similar results [14]. These studies, however, were conducted in research settings. Research on intensive treatment programs in clinical settings' outcomes post-discharge is needed. This study aims to address that research gap.

Moreover, the COVID-19 pandemic catalyzed an increase in virtual treatments to increase access to care [22*]. Prior to the pandemic, there already had been demonstrations that implementing CBT via telehealth offered similar treatment outcomes for pediatric anxiety disorders and OCD compared to in-person treatment [23, 24]. After the start of the pandemic, initial research has found that virtual intensive group and family-based treatment yielded similar reductions in parent- and child-reported child anxiety symptoms and children's functional impairment by the end of treatment as compared to in-person intensive treatment [25]. However, there is an absence of research on the sustainability of the impact of intensive group- and family-based treatment provided virtually after patients have been discharged. A few studies investigated the long-term impact of weekly telehealth for pediatric anxiety disorders and found that virtual treatment gains were maintained and sometimes improved even more after completion of treatment up to a year later [26, 27, 28*]. This study aims to examine whether treatment gains achieved at the end of treatment are sustained three months after discharging from an intensive group- and family-based treatment that includes telehealth sessions. The following hypotheses were tested:

1. In light of previous research on the effectiveness of in-person, family-based, intensive group treatments for pediatric anxiety disorders and OCD in a clinical setting [20], it is anticipated that parents and children will endorse improvements in children's symptoms and functional impairment when comparing admission to discharge ratings from intensive treatment that included telehealth sessions.
2. Based on previous research on sustained treatment gains for in-person, family-based, intensive group treatments for pediatric anxiety disorders and OCD [15*, 14], it is hypothesized that improvement in children's

symptoms and functional impairment will be sustained three months after treatment that included telehealth components of care.

Method

Participants

Participants included 63 children and adolescents, ages 8–19, who were patients in an intensive outpatient group-based treatment program at an academic medical center in an urban city on the east coast of the United States. All patients and their caregivers provided assent or consent, respectively, for their treatment outcome data to be utilized for research purposes. Referral sources included outpatient providers, inpatient or residential treatment providers, school staff members, or families learned about the program through the hospital's website or through local community members. All study procedures were approved by the Institutional Review Board.

Among the participants, 34 (54.0%) identified as female, 26 (41.3%) identified as male, 1 (1.6%) as transgender female, and 2 (3.2%) did not identify a gender. The mean age was 13.72 (SD = 2.94). Regarding race, patients could select multiple responses, and 53 (84.1%) identified as White, 5 (7.9%) as Asian, Asian American, or Pacific Islander, 3 (4.8%) as Latino/Latina Hispanic (White), 3 (4.8%) as Middle Eastern, 2 (3.2%) as Black or African American, and 1 (1.6%) as Other. Regarding sexual orientation, 39 (61.9%) identified as heterosexual, 4 (6.3%) as bisexual, 4 (6.3%) as lesbian, 2 (3.2%) identified as pansexual, 1 (1.6%) as gay, 1 (1.6%) identified as queer, 6 (9.5%) identified as an orientation that was not listed, 3 (4.8%) did not want to report a sexual orientation, and 3 (4.8%) did not answer the question. The majority of families in the study endorsed earning an annual family income over \$100,000 [52 (82.5%), and 2 (3.2%) did not respond to this question or chose not to disclose]. Parents also were highly educated; 14 (22.2%) of the responding parents reported having earned a bachelor's degree, 26 (41.3%) endorsed having a master's degree, 14 (22.2%) noted having a professional degree (e.g., M.D., Ph.D., J.D., etc.), 8 (12.7%) reported that they did not finish or attend college, and 1 (1.6%) did not respond to this question.

The majority of caregivers reported that their children continued to meet with an outpatient therapist after having completed the program, consistent with recommendations made for all families upon discharge from this intensive treatment. Specifically, 10 (15.9%) reported that the child met with a therapist more than once a week, 36 (57.1%) met

once a week, 5 (7.9%) met every other week, 3 (4.8%) met monthly, 3 (4.8%) reported that they did not meet with a therapist, and 6 (9.5%) did not answer. Additionally, among the 47 caregivers who described an outpatient treatment modality in the follow-up assessment, the following treatment modalities and the frequency with which they were reported were noted: 13 (27.7%) only CBT, 8 (17.0%) CBT and supportive/talk therapy, 6 (12.8%) CBT and two other types of therapy, 5 (10.6%) CBT and ERP, 4 (8.5%) CBT and DBT, 4 (8.5%) only DBT, 3 (6.4%) only talk therapy, 2 (4.3%) CBT and ACT, and 2 (4.3%) only ERP. Overall, 40 (85.1%) reported CBT and/or ERP outpatient treatment. Given that this paper aims to examine whether treatment gains were sustained at follow-up, it is important to note that findings regarding the sustainability of treatment gains three months post-discharge cannot be attributed solely to treatment delivered through this intensive treatment program.

Moreover, the majority of children were prescribed psychiatric medications not only as part of the treatment program, but also as part of their discharge treatment plans. Among the participants, most [49 (77.8%)] reported that their youth followed their prescription regimen completely. A couple families (3.2%) reported that their children followed their medication regimen moderately, and the remaining 6 (9.5%) families reported not being prescribed medication at the follow-up assessment.

In addition, there were families who did not complete follow-up assessments. When the program first started, independent evaluators invited families in for assessments that included time for the families to complete the parent- and child-report measures, three months after discharge. Because these assessments often required children to miss school, they were discontinued. That structure also meant that not everyone could participate. Only 18 of the 216 families participated. When the program transitioned to virtual treatment during the pandemic, the follow-up parent- and child-report assessments were administered electronically and remotely. More, but not all, families completed these assessments (i.e., 44 of the 130 families completed the assessments).

Measures

Child Anxiety Impact Scale [CAIS-C and CAIS-P; 29]

The CAIS-C and the CAIS-P are 27-item questionnaires that were completed by the children and parents in our program, respectively. This measure assesses for interference in social, home, and academic domains. The measures were administered at admission, discharge, as well as at follow-up, three months after discharge to assess the impact of anxiety on patients' functioning. Responses are rated on

a 4-point Likert scale, ranging from 0 (“not at all”) to 3 (“very much”), with possible scores ranging from 0 to 81. Higher scores indicated greater interference. The total score and subscales for both the parent and child versions show good to excellent construct validity and internal consistency [Cronbach’s $\alpha=0.70-0.90$; 30].

In March 2022, authors learned that there was one item missing from the child- and parent-report of the CAIS: “Spending the night at a friend’s house.” All participants up until that time completed measures with the omitted question, scores at different timepoints compared the same number of answered questions. The additional item would have potentially increased the total score by a maximum of three points. After March 2022, the additional item was added to the scoring system. Because the analyses compare each person’s own ratings at different timepoints, all of the CAIS data that involved a consistent number of responses at each time point for each reporter were included in the analyses.

Spence Children’s Anxiety Scale [Child Report (SCAS-C) and Parent Report (SCAS-P); 31, 32]

The SCAS-C is a 44-item child-report questionnaire, and the SCAS-P is a 39-item parent-report questionnaire. These questionnaires measure severity of anxiety symptoms. They were administered at admission, discharge, and at the follow-up timepoint. Responses range from 0 (“Never”) to 3 (“Always”). The range of possible scores is 0-132 for children, and 0-117 for parents. Higher scores indicated greater levels of anxiety. The SCAS has demonstrated good to excellent internal consistency for both the parent [$\alpha=0.89$; 33] and child [$\alpha=0.92$; 31] versions of the measure.

Center for Epidemiological Studies Depression Scale for Children [CES-DC; 34]

The CES-DC is a 20-item questionnaire that measures self-reported depression symptoms in children. The measure was administered at admission, discharge, and follow-up assessments. Each item response ranged from 0 (“Not at all”) to 3 (“A lot”), with possible scores ranging from 0 to 60 and higher scores indicating greater depression severity. The CES-DC has demonstrated very good internal consistency [$\alpha=0.89$; 35].

Procedure

Informed Consent and assent were obtained at families’ initial visit to the program during the diagnostic evaluation. Families were asked to complete routine outcome monitoring questionnaires at the beginning of treatment, the day of discharge, and three months after the discharge date. One

caregiver from each family completed the questionnaires for consistency in reporting.

During treatment, each family was assigned a treatment team, which consisted of a psychologist, psychiatrist, and clinical or counseling psychology doctoral student. There was a treatment group for children ages 8–13, and one for adolescents and young adults ages 14–19. Group size was 5–6 in the child group and 6–8 in the adolescent group.

Children attended treatment four afternoons per week for a minimum of four weeks and with the option of extending for any number of full weeks (with a minimum extension of two weeks). The average length of treatment was about eight weeks ($M=7.98$, $SD=3.00$). Participants attended a 45-minute psychoeducation group and a 90-minute exposure with response prevention (ERP) group three days each week, during which participants engaged in individually tailored exposure practices within the group setting. At the end of each day, a clinician met with a caregiver and the child privately to review the exposures that were completed that day and the action plan – assigned exposures and skills – to be completed before the next treatment day. Every family also attended a weekly 45-minute therapy session with their psychologist and a 45-minute session with their psychiatrist for medication consultation. In total, children attended treatment for about 11 h each week.

In addition to daily check-ins and participation in weekly family and psychopharmacology meetings, caregivers were integrated in treatment through attendance of caregiver guidance groups. These groups prioritized teaching caregivers relevant skills to better support their children and families in addressing anxiety and OCD. Over the course of this program’s history, caregiver guidance groups were initially offered once a week, then twice a week, and then once a week. These changes occurred in response to caregivers’ feedback and attendance. Paired *t*-tests compared families who had access to one weekly caregiver group to those who had access to two weekly caregiver groups on all outcome variables that were used in this study. There were no significant differences for any of the outcome variables; therefore, the analyses examined all families together, regardless of the number of caregiver guidance groups attended.

The initial evaluation, weekly family meetings, and weekly psychiatry meetings were insurance-based sessions, and the remaining sessions were self-pay. Families had the opportunity to apply for a scholarship for the self-pay portion of treatment. Additionally, the service delivery format of the program shifted in response to social distancing requirements associated with the COVID-19 pandemic. Prior to the pandemic, the program operated entirely in-person at the clinic. Treatment shifted into an entirely virtual format in March 2020; treatment was delivered remotely in real-time via videoconferencing technology. In August 2022, the

program transitioned to a hybrid model of care, with one in-person group day and three virtual treatment days. A one-way ANOVA was used to test for differences between outcomes (all variables used in this study) for participants who completed fully in-person, virtual, and hybrid participants. There were no significant differences across these three program structures, and the analyses in this manuscript focus on the fully virtual and hybrid treatment structures.

Results

Analytic Strategy

Paired-Sample *t*-tests were performed using SPSS 28.0 to assess changes on all measures between admission to discharge and also between discharge and the three-month follow-up assessment. Parent- and child-report measures were compared separately.

Hypothesis 1 Parents and children will endorse improvements in children's symptoms and functional impairment when comparing admission to discharge ratings from intensive treatment that included telehealth sessions.

As expected, both parents and children endorsed significant improvement in children's anxiety symptoms [M(child SCAS at admission)=36.55, SD=15.97; M(child SCAS at discharge)=23.26, SD=19.91; $t(37)=6.05$, $p=.001$; M(parent SCAS at admission)=35.08, SD=13.12; M(parent SCAS at discharge)=20.84, SD=13.38; $t(49)=7.52$, $p=.001$] and functional impairment [M(child CAIS at admission)=21.56, SD=16.38; M(child CAIS at discharge)=17.11, SD=18.07; $t(33)=2.30$, $p=.028$; (parent CAIS at admission)=28.96, SD=14.15; M(parent CAIS at discharge)=16.43, SD=14.38; $t(45)=6.56$, $p<.001$]. Children also endorsed reductions in their depression symptoms [M(child CES-DC at admission)=21.63, SD=13.72; M(child CES-DC at discharge)=15.74, SD=11.58; $t(37)=4.22$, $p=.001$].

Hypothesis 2 Improvement in children's symptoms and functional impairment will be sustained three months after treatment that included telehealth components of care.

As expected, there were no significant differences between discharge or three-month follow-up ratings by both parents and children with respect to children's anxiety symptoms [M(child SCAS at discharge)=23.04, SD=20.76; M(child SCAS at follow-up)=26.58, SD=19.13; $t(25)=-1.59$, $p=.125$; M(parent SCAS at discharge)=21.88, SD=14.11; M(parent SCAS at follow-up)=22.23, SD=14.43;

$t(51)=-0.22$, $p=.825$] and functional impairment [M(child CAIS at discharge)=20.55, SD=20.25; M(child CAIS at follow-up)=17.05, SD=16.47; $t(21)=1.76$, $p=.093$; (parent CAIS at discharge)=16.50, SD=13.76; M(parent CAIS at follow-up)=15.33, SD=13.36; $t(45)=.67$, $p=.505$]. Children also endorsed reductions in their depression symptoms [M(child CES-DC at discharge)=16.44, SD=12.14; M(child CES-DC at follow-up)=18.68, SD=13.33; $t(24)=-1.34$, $p=.193$].

Discussion

The present study investigated the effectiveness and sustainability of an intensive outpatient cognitive-behavioral treatment program for pediatric anxiety disorders and OCD. Although previous research has demonstrated strong support for the efficacy of in-person intensive CBT between admission and discharge time-points [14, 15*], the longer-term benefits of this approach using virtual sessions have received relatively less attention. The present study aimed to add to the literature by investigating whether treatment gains achieved during intensive group- and family-based outpatient CBT program for pediatric anxiety disorders and OCD using a hybrid (i.e., virtual and in-person) format with the majority of the sessions held virtually could persist beyond discharge.

Supporting the study's first hypothesis, both parents and children endorsed that children experienced significant improvements in anxiety and in functional impairment after completing intensive CBT treatment, and children also reported significant decreases in depression symptoms. These findings extend the literature base supporting the efficacy of intensive CBT for pediatric anxiety disorders and OCD [14, 20] and also support research that demonstrated the efficacy of intensive treatment provided via telehealth [23, 24].

Notably, the mean depression score at discharge was below the clinical cut-off, which highlights that on average, children were no longer meeting clinical levels of depression after treatment. Although further evaluation is needed to better understand these mechanisms of change, it may be that the CBT skills were transferable to depression symptoms. An additional hypothesis could be that children may have noticed reductions in depression due to their ability to engage in life more easily without as much distress from anxiety. These results align with studies demonstrating that intensive outpatient treatment can lead to greater reductions in depression symptoms than achieved through weekly outpatient treatment [21].

Supporting the study's second hypothesis, treatment gains were maintained three months after discharge. These

results are consonant with research that demonstrated treatment gains achieved through intensive in-person CBT can be maintained at follow-up time-points [14, 15*]. Of note, the majority of participants in this study continued with outpatient therapy post-discharge. It is likely that continuing CBT after an intensive program is necessary and helpful to continue generalizing gains post-discharge and offer children support as they reduce the frequency of their treatment sessions.

The present study extends the burgeoning literature supporting the efficacy of telehealth-based treatments for mental health conditions by demonstrating that intensive treatment, provided either in a fully virtual or a hybrid format, can foster sustained improvement beyond discharge. A growing body of research supports the functional equivalence of videoconference-based delivery of CBT for pediatric anxiety disorders and OCD and traditional in-person treatment [22, 23, 25]. The ability to deliver gold-standard psychological treatments for these conditions remotely in real-time is promising, as telehealth-based treatment methods may circumvent many barriers to treatment availability, accessibility, and acceptability [36]. Moreover, telehealth may facilitate external validity as it offers opportunities for children to participate in their everyday home and surrounding community environments. Preliminary analyses for the present study did not identify significant differences in outcomes for youth who participated in treatment through either fully virtual or in a hybrid virtual/in-person model [25]. As such, this study adds to the nascent literature suggesting that intensive treatment for pediatric anxiety and OCD that includes telehealth sessions can be effective not only once children have been discharged from treatment, but also for multiple months after intensive treatment has ended. These data can help circumvent barriers to treatment access for families, and help children sustain treatment momentum in an abbreviated period of time via intensive formats.

Limitations and Future Directions

There are several limitations and future directions worth addressing. First, the diversity of the study sample was limited, and therefore, not fully representative of the treatment-seeking population of anxious youth. Specifically, the majority of the sample identified as White and from families with relatively high incomes (i.e., annual incomes greater than \$100,000). Although the program in this study offered need-based scholarships, it is possible that this information was not available in all surrounding communities, which suggests the need to further disseminate information about scholarship. Additional research is needed to clarify the generalizability of these results to economically and racially diverse populations. Sustained investment in policies that

prioritize equitable access to treatment is essential to address these disparities and ensure that all families in need can benefit from such interventions. Second, results may be impacted by selection bias, as not all families enrolled in the research study completed follow-up measures. Specifically, it is possible that families of youth who experienced greater symptom improvements in the months post-discharge or those with a more positive program experience were more inclined to participate in follow-up assessments, potentially skewing the results.

Third, the sample size limited the ability to investigate potential moderators. Building upon the findings of this study and with a larger sample size, future research may be able to explore potential moderators and predictors of whom is more likely to maintain gains after treatment. Understanding these factors can allow providers to identify who might not maintain gains after discharge and reasons why. In turn, clinicians may be better able to tailor treatment so that it optimizes outcomes for more youth. Fourth, the study investigated whether treatment gains were sustained three months after discharge, and it remains to be seen whether this trend continues for an even longer period of time after treatment. Lastly, because the program recommended that families pursue care after discharge, it was not possible to determine the degree of the long-term impact of the intensive program.

Conclusions

Despite the limitations, this study adds to the literature about how intensive group- and family-based treatment provided in either a fully virtual or hybrid format can help children sustain reductions in reported anxiety, depression, and functional impairment symptoms even three months after treatment. Given the increase in rates of pediatric mental illnesses during the COVID-19 pandemic, this intensive, hybrid treatment format may be a way to increase access to much-needed care.

Author Contributions J.S. developed the paper idea and wrote the introduction, results, and references sections. A.S. co-wrote the abstract and discussion sections with R.M.E. E.T. wrote the methods section. All authors reviewed the manuscript.

Data Availability No datasets were generated or analysed during the current study.

Declarations

Humans and Animal Rights All reported studies/experiments with human or animal subjects performed by the authors have been previously published and complied with all applicable ethical standards (including the Helsinki declaration and its amendments, institutional/national research committee standards, and international/national/institutional guidelines).

Competing Interests The authors declare no competing interests.

References

- *Higa-McMillan CK, Francis SE, Rith-Najarian L, Chorpita BF. Evidence base update: 50 years of research on treatment for child and adolescent anxiety. *J Clin Child Adolesc Psychol*. 2016;45(2):91–113. <https://doi.org/10.1080/15374416.2015.1046177>. Epub 2015 Jun 18. PMID: 26087438. This article summarized years of evidence-based treatment for pediatric anxiety disorders research.
- Asselmann E, Wittchen HU, Lieb R, Beesdo-Baum K. Sociodemographic, clinical, and functional long-term outcomes in adolescents and young adults with mental disorders. *Acta Psychiatr Scand*. 2018;137(1):6–17. <https://doi.org/10.1111/acps.12792>. Epub 2017 Aug 31. PMID: 28861892.
- *Freeman J, Garcia A, Frank H, Benito K, Conelea C, Walther M, Edmunds J. Evidence base update for psychosocial treatments for pediatric obsessive-compulsive disorder. *J Clin Child Adolesc Psychol*. 2014;43(1):7–26. <https://doi.org/10.1080/15374416.2013.804386>. Epub 2013 Jun 9. PMID: 23746138; PMCID: PMC3815743. This paper investigated which evidence-based treatments had the most support for treating pediatric OCD.
- Zhou X, Zhang Y, Furukawa TA, Cuijpers P, Pu J, Weisz JR, Yang L, Hetrick SE, Del Giovane C, Cohen D, James AC, Yuan S, Whittington C, Jiang X, Teng T, Cipriani A, Xie P. Different types and acceptability of psychotherapies for acute anxiety disorders in children and adolescents: a network meta-analysis. *JAMA Psychiatry*. 2019;76(1):41–50. <https://doi.org/10.1001/jamapsychiatry.2018.3070>. PMID: 30383099; PMCID: PMC6583467.
- Wergeland GJH, Riise EN, Öst LG. Cognitive behavior therapy for internalizing disorders in children and adolescents in routine clinical care: a systematic review and meta-analysis. *Clin Psychol Rev*. 2021;83:101918. <https://doi.org/10.1016/j.cpr.2020.101918>. Epub 2020 Sep 23. PMID: 33186776.
- Barrett P, Farrell L, Dadds M, Boulter N. Cognitive-behavioral family treatment of childhood obsessive-compulsive disorder: long-term follow-up and predictors of outcome. *J Am Acad Child Adolesc Psychiatry*. 2005;44(10):1005–14. <https://doi.org/10.1097/01.chi.0000172555.26349.94>. PMID: 16175105.
- Flannery-Schroeder E, Choudhury MS, Kendall PC. Group and individual cognitive behavioral treatments for youth with anxiety disorders: 1-year follow-up. *Cogn Therapy Res*. 2005;29(2):253–9. <https://doi.org/10.1007/s10608-005-3168-z>.
- Sun M, Rith-Najarian LR, Williamson TJ, Chorpita BF. Treatment features associated with youth cognitive behavioral therapy follow-up effects for internalizing disorders: a meta-analysis. *J Clin Child Adolesc Psychol*. 2019;48(sup1):S269–83. <https://doi.org/10.1080/15374416.2018.1443459>. Epub 2018 Apr 20. PMID: 29677451; PMCID: PMC6195852.
- Craske MG, Treanor M, Conway CC, Zbozinek T, Vervliet B. Maximizing exposure therapy: an inhibitory learning approach. *Behav Res Ther*. 2014;58:10–23. <https://doi.org/10.1016/j.brat.2014.04.006>. Epub 2014 May 9. PMID: 24864005; PMCID: PMC4114726.
- Khanna MS, Kendall PC. Exploring the role of parent training in the treatment of childhood anxiety. *J Consult Clin Psychol*. 2009;77(5):981–6. <https://doi.org/10.1037/a0016920>. PMID: 19803577.
- Bennett AC, Brewer KC, Rankin KM. The association of child mental health conditions and parent mental health status among U.S. Children, 2007. *Matern Child Health J*. 2012;16(6):1266–75. <https://doi.org/10.1007/s10995-011-0888-4>. PMID: 21948199.
- *Ginsburg GS, Becker EM, Keeton CP, Sakolsky D, Piacentini J, Albano AM, Compton SN, Iyengar S, Sullivan K, Caporino N, Peris T, Birmaher B, Rynn M, March J, Kendall PC. Naturalistic follow-up of youths treated for pediatric anxiety disorders. *JAMA Psychiatry*. 2014;71(3):310–8. <https://doi.org/10.1001/jamapsychiatry.2013.4186>. PMID: 24477837; PMCID: PMC3969570. This study demonstrated that weekly CBT can be effective for pediatric anxiety in the long run, but that it still does not meet the needs of the majority of patients.
- Pediatric OCD, Treatment Study (POTS) Team. Cognitive-behavior therapy, sertraline, And their combination for children and adolescents with obsessive-compulsive disorder: the Pediatric OCD Treatment Study (POTS) randomized controlled trial. *JAMA*. 2004;292(16):1969–76. <https://doi.org/10.1001/jama.292.16.1969>. PMID: 15507582.
- Öst LG, Ollendick TH. Brief, intensive and concentrated cognitive behavioral treatments for anxiety disorders in children: a systematic review and meta-analysis. *Behav Res Ther*. 2017;97:134–45. <https://doi.org/10.1016/j.brat.2017.07.008>. Epub 2017 Jul 17. PMID: 28772195.
- *Storch EA, Geffken GR, Merlo LJ, Mann G, Duke D, Munson M, Adkins J, Grabill KM, Murphy TK, Goodman WK. Family-based cognitive-behavioral therapy for pediatric obsessive-compulsive disorder: comparison of intensive and weekly approaches. *J Am Acad Child Adolesc Psychiatry*. 2007;46(4):469–478. <https://doi.org/10.1097/chi.0b013e31803062e7>. PMID: 17420681. This study demonstrated that intensive treatment for pediatric OCD had some additional benefits compared to weekly CBT at discharge but similar outcomes three months later.
- Angelosante AG, Pincus DB, Whitton SW, Cheron D, Pian J. Implementation of an intensive treatment protocol for adolescents with panic disorder and agoraphobia. *Cogn Behav Pract*. 2009;16(3):345–57. <https://doi.org/10.1016/j.cbpra.2009.03.002>.
- Oar EL, Farrell LJ, Waters AM, Conlon EG, Ollendick TH. One session treatment for pediatric blood-injection-injury phobia: A controlled multiple baseline trial. *Behav Res Ther*. 2015;73:131–42. <https://doi.org/10.1016/j.brat.2015.08.002>. Epub 2015 Aug 13. PMID: 26313620.
- Ollendick TH, Ost LG, Reuterskiöld L, Costa N, Cederlund R, Sirbu C, Davis TE 3rd, Jarrett MA. One-session treatment of specific phobias in youth: a randomized clinical trial in the United States and Sweden. *J Consult Clin Psychol*. 2009;77(3):504–16. <https://doi.org/10.1037/a0015158>. PMID: 19485591.
- Santucci LC, Ehrenreich JT, Trosper SE, Bennett SM, Pincus DB. Development and preliminary evaluation of a 1-Week summer treatment program for separation anxiety disorder. *Cogn Behav Pract*. 2009;16(3):317–31. <https://doi.org/10.1016/j.cbpra.2008.12.005>. PMID: 21935300; PMCID: PMC3175374.
- Sperling J, Boger K, Potter M. The impact of intensive treatment for pediatric anxiety And obsessive-compulsive disorder on daily functioning. *Clin Child Psychol Psychiatry*. 2020;25(1):133–140. <https://doi.org/10.1177/1359104519871338>. Epub 2019 Aug 29. Erratum in: *Clin Child Psychol Psychiatry*. 2022;27(2):517–518. PMID: 31464534.
- Remmerswaal KCP, Lans L, Seldenrijk A, Hoogendoorn AW, van Balkom AJLM, Batelaan NM. Effectiveness and feasibility of intensive versus regular cognitive behaviour therapy in patients with anxiety and obsessive-compulsive disorders: a meta-analysis. *J Affect Disorders Rep*. 2021;6:100267. <https://doi.org/10.1016/j.jadr.2021.100267>.
- *Franklin ME, Engelmann JM, Bulkes NZ, Horvath G, Piacsek K, Osterlund E et al. Intensive cognitive-behavioral therapy telehealth for pediatric obsessive-compulsive disorder during the COVID-19 pandemic: Comparison with a matched sample treated in person. *JAACAP Open*. 2024;2(1):26–35. <https://doi.org/10.1016/j.jaacop.2023.09.007>. This study illustrated that

- intensive treatment delivered via telehealth can be just as effective as in-person intensive treatment.
23. Carpenter AL, Pincus DB, Furr JM, Comer JS. Working from home: an initial pilot examination of videoconferencing-based cognitive behavioral therapy for anxious youth delivered to the home setting. *Behav Ther.* 2018;49(6):917–30. <https://doi.org/10.1016/j.beth.2018.01.007>. Epub 2018 Mar 5. PMID: 30316490; PMCID: PMC6190606.
 24. Comer JS, Furr JM, Kerns CE, Miguel E, Coxe S, Elkins RM, Carpenter AL, Cornacchio D, Cooper-Vince CE, DeSerisy M, Chou T, Sanchez AL, Khanna M, Franklin ME, Garcia AM, Freeman JB. Internet-delivered, family-based treatment for early-onset OCD: a pilot randomized trial. *J Consult Clin Psychol.* 2017;85(2):178–86. <https://doi.org/10.1037/ccp0000155>. Epub 2016 Nov 21. PMID: 27869451; PMCID: PMC5533654.
 25. Gittins Stone DI, Elkins RM, Gardner M, Boger K, Sperling J. Examining the effectiveness of an intensive telemental health treatment for pediatric anxiety and OCD during the COVID-19 pandemic and pediatric mental health crisis. *Child Psychiatry Hum Dev* 2023 Feb 7:1–15. <https://doi.org/10.1007/s10578-023-01500-5>. Epub ahead of print. PMID: 36749490; PMCID: PMC9902833.
 26. March S, Spence SH, Donovan CL. The efficacy of an internet-based cognitive behavioral therapy intervention for child anxiety disorders. *J Pediatr Psychol.* 2009;34(5):474–87. <https://doi.org/10.1093/jpepsy/jsn099>. Epub 2008 Sep 15. PMID: 18794187.
 27. Spence SH, Donovan CL, March S, Gamble A, Anderson RE, Prosser S, Kenardy J. A randomized controlled trial of online versus clinic-based CBT for adolescent anxiety. *J Consult Clin Psychol.* 2011;79(5):629–42. <https://doi.org/10.1037/a0024512>. PMID: 21744945.
 28. *Vigerland S, Serlachius E, Thulin U, Andersson G, Larsson JO, Ljótsson B. Long-term outcomes and predictors of internet-delivered cognitive behavioral therapy for childhood anxiety disorders. *Behav Res Ther.* 2017;90:67–75. <https://doi.org/10.1016/j.brat.2016.12.008>. Epub 2016 Dec 14. PMID: 28012300. This study demonstrated that CBT provided via telehealth could offer sustainable gains.
 29. Langley AK, Bergman RL, McCracken J, Piacentini JC. Impairment in childhood anxiety disorders: preliminary examination of the child anxiety impact scale-parent version. *J Child Adolesc Psychopharmacol.* 2004 Spring;14(1):105–14. <https://doi.org/10.1089/104454604773840544>. PMID: 15142397.
 30. Langley AK, Falk A, Peris T, Wiley JF, Kendall PC, Ginsburg G, Birmaher B, March J, Albano AM, Piacentini J. The child anxiety impact scale: examining parent- and child-reported impairment in child anxiety disorders. *J Clin Child Adolesc Psychol.* 2014;43(4):579–91. <https://doi.org/10.1080/15374416.2013.817311> Epub 2013 Aug 5. PMID: 23915200; PMCID: PMC4137893.
 31. Spence SH. A measure of anxiety symptoms among children. *Behav Res Ther.* 1998 May;36(5):545–66. [https://doi.org/10.1016/s0005-7967\(98\)00034-5](https://doi.org/10.1016/s0005-7967(98)00034-5). PMID: 9648330.
 32. Spence SH. *Spence Children's anxiety scale (parent version)*. Brisbane: University of Queensland; 1999.
 33. Nauta MH, Scholing A, Rapee RM, Abbott M, Spence SH, Waters A. A parent-report measure of children's anxiety: psychometric properties and comparison with child-report in a clinic and normal sample. *Behav Res Ther.* 2004;42(7):813–39. [https://doi.org/10.1016/S0005-7967\(03\)00200-6](https://doi.org/10.1016/S0005-7967(03)00200-6). PMID: 15149901.
 34. Weissman MM, Orvaschel H, Padian N. Children's symptom and social functioning self report scales. Comparison of mothers' and children's reports. *J Nerv Ment Dis.* 1980;168(12):736–40. <https://doi.org/10.1097/00005053-198012000-00005>. PMID: 7452212.
 35. Faulstich ME, Carey MP, Ruggiero L, Enyart P, Gresham F. Assessment of depression in childhood and adolescence: an evaluation of the Center for Epidemiological Studies Depression Scale for Children (CES-DC). *Am J Psychiatry.* 1986;143(8):1024–7. <https://doi.org/10.1176/ajp.143.8.1024>. PMID: 3728717.
 36. Comer JS. Introduction to the special series: applying new technologies to extend the scope and accessibility of mental health care. *Cogn Behav Pract.* 2015;22(3):253–7. <https://doi.org/10.1016/j.cbpra.2015.04.002>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.