

Internet Cognitive-Behavioral Therapy: Basics for the Child and Adolescent Psychiatrist

Jenny Nguyen, MD, Patricia Lester, MD, Jessica Jeffrey, MD, MPH, MBA

Cognitive-behavioral therapy (CBT) is an evidence-based treatment for a range of behavioral health disorders, including depression and anxiety. CBT is traditionally conducted in-person and has been shown to have at least a 50% response rate with decrease in symptoms.¹ However, there are barriers that prevent traditional CBT from being an available option. Children and adolescents may lack access to in-person CBT treatments due to various issues, such as time conflicts with school hours, lack of transportation to clinics where CBT is delivered, and an overall paucity of CBT services in the community. Additionally, patients may be reluctant to access in-person care due to stigma associated with behavioral health conditions and treatments.

One modality for addressing some of the barriers to in-person care is internet CBT (iCBT), the delivery of cognitive behavioral therapy via the internet. This paper reviews commercially licensed iCBT programs, specifically those adapted for children and adolescents with depression and/or anxiety.

What Is Internet CBT (iCBT) and Is It Effective?

iCBT takes the form of digitally delivered modules comprised of multi-media content, questionnaires, and other interactive content. iCBT is self-managed by the patient, generally without monitoring by a provider. This novel method of delivering therapeutic services offers an alternative solution to challenges related to receiving in-person CBT. Through providing treatment over the internet, iCBT allows patients to access treatment at a time convenient for them and in the comfort of their own personal space.¹

A recent meta-analysis examined randomized controlled trials (RCTs) of iCBT and other technology delivered interventions, in study participants aged 6-18 years.

The choice of control group varied by trial but included placebo, waiting list, attention control, and face-to-face CBT. The overall conclusion was that iCBT led to improvements in measures of anxiety and depressive symptoms at post-intervention compared to the waiting list group. This conclusion was based on a calculation of the effect size (Hedges' g) across 17 studies ($g = .66$ [95% CI 0.42 to 0.90], $p < .001$). There was a smaller effect size compared to placebo and attention control groups. iCBT did not demonstrate statistically significant effects over traditional CBT ($n = 4$, $g = 0.11$ [95% CI -0.06 to 0.28], $p = 0.92$). In addition, effect sizes were greater when there was contact with a therapist, rather than purely self-help.²

What iCBT Programs are Available for Children and Adolescents With Depression/Anxiety?

iCBT programs were initially developed for adults and gained traction outside of the US. Over time, some of these programs were adapted for children and adolescents. At the time of this paper, the majority of iCBT programs in the US are targeted toward adults.¹

In selecting programs to review for this paper, we searched for programs that met two criteria: 1) created or adapted for children and adolescents with anxiety and depression and 2) have been evaluated in RCTs and demonstrated non-inferiority to in-person therapy. Based on these factors, two programs – moodgym and BRAVE-Online – were included in this paper. See Table 1 for more details of each program discussed below.

This field is rapidly evolving, and there are a variety of free and commercial programs delivered in electronic media. At the time of writing, we found that the free programs did not meet the inclusion criteria above. However, there

Table 1: Internet Cognitive-Behavioral Therapy (iCBT) Programs Summary		
	moodgym ³	BRAVE-Online ⁷
Conditions Targeted	Anxiety and depression	Anxiety: Separation anxiety, social phobia, specific phobia, generalized anxiety
Age Range	Adolescents: 11-17 Young Adults: 18-30 Adults: 30+	Children: 8-12 Adolescents: 13-17
Features	<ul style="list-style-type: none"> 5 modules Interactive game, exercises, quizzes Workbook – exercises, quizzes, homework Assessment for anxiety/depression symptoms Relaxation audio (downloadable) Feedback assessment 	<ul style="list-style-type: none"> 10 sessions with animations, quizzes, puzzles, and interactive games Progress monitor Emails with further tips at end of each step Contact with therapist via email or phone Refresher course for youth and parents Of note, there are 2 versions of BRAVE offered: 1) BRAVE Self-help Program, 2) BRAVE-Online Therapist Program
Topics/Content	<ul style="list-style-type: none"> Cognitive restructuring Relationships between thoughts and emotions Dealing with stress Dealing with Relationship break-ups Relaxation and meditation techniques 	<ul style="list-style-type: none"> Identifying anxiety symptoms Cognitive restructuring Graded exposures Relaxation strategies Psychoeducation sessions for parents
Sessions and Duration	<ul style="list-style-type: none"> 5 modules (20 to 40 minutes) to be completed over 6 week period 	<ul style="list-style-type: none"> 1 session (60 minutes)/week for 10 weeks Refresher course at 1 month and 3 month after completion Complementary 5-6 sessions (60 minutes) for parents + 2 online refresher sessions via separate login Therapist contact after each session (if this version selected)
Availability	Australia, UK, Norway, USA, Asia, Europe	<ul style="list-style-type: none"> Australia International: Please contact team@BRAVE-online.com if you are living in UK, Europe or USA
Cost	AUD 39.00 = USD 27.50 for 12 month subscription	AU: Previously free in 2017, contact http://www.brave-online.com/contact-us-2/ for current pricing
How to Sign Up	Register on https://moodgym.com.au	AU: Register on https://brave4you.psy.uq.edu.au/

is active research into other iCBT programs and clinicians are encouraged to look up review papers for an updated evaluation of the various interventions.²

moodgym

moodgym is a standalone iCBT program designed to reduce mild-to-moderate symptoms of depression and anxiety in youth aged 11-17 years and in adults. The program helps users to identify and overcome distressing emotions and dysfunctional thinking patterns as well as develop good coping skills through the use of animation, interactive games, and workbook exercises. moodgym consists of 5 prescribed modules, each lasting approximately 20-40 minutes, that focus on cognitive restructuring, the relationship between thoughts and emotions, dealing with stress and relationships, as well as relaxation and meditation techniques.³ It is recommended the modules are completed over a 6-week period.

Calear *et al.* conducted an RCT in an Australian adolescent population, examining the effectiveness of moodgym in reducing symptoms of anxiety and depression. Both male and female moodgym users had significantly lower levels of anxiety, with sustained effects at 6-month follow-up compared to wait-list controls. Only male users of moodgym had significantly decreased symptoms of depression compared to waitlist controls, though these effects were less profound compared to reduction in anxiety.⁴

To explore the potential effects of iCBT in female adolescents, O’Kearney *et al.*, investigated the effects of moodgym as part of a high school curriculum for adolescent girls, with a control group receiving the school’s standard personal development curriculum about nutrition. The study suggests that depressive symptoms in the intervention group decreased faster, as measured by the Centre for Epidemiological Studies Depression Scale (CESD21) at post-intervention and follow-up. In addition, the investigators found that the effect was greatest for participants with higher initial CESD21 scores.⁵

Generally, moodgym users who completed ≥ 2 modules experienced decreased symptoms of depression, although the majority of participants did not complete the entire program.^{1,4} iCBT can be combined with clinical practice for sustained effects. For instance, an RCT showed that combining the moodgym program with in-person therapist support is effective in reducing depressive and anxiety symptoms with benefits still present at 6-month follow-up.⁶

BRAVE-Online

BRAVE-Online is an evidence-based iCBT program that aims to help children and adolescents ages 8-17 years old reduce anxiety. The program teaches users how to recognize anxiety, develop relaxation skills, and replace negative thinking with more positive thinking styles through the use of animations, puzzles, quizzes and interactive games. The program consists of 10 sessions (60 minutes each) to be completed sequentially over a 10-week period.

Complementary psychoeducation sessions for parents are also available via separate parental login.⁸ BRAVE-Online is currently available in two formats in Australia: 1) BRAVE Self-help Program, 2) BRAVE-Online Therapist Program. With the BRAVE-Online Therapist Program, a trainer is available online to provide guidance through the program to help clients overcome anxiety.⁷ Although this program is not currently available in the US, the organization encourages providers to contact them for access.

Compared with age-matched wait-list controls, children who participated in BRAVE-Online, showed more improvement in anxiety symptoms, with 75% of these children symptom free at 6-month follow-up.⁸ Another study showed that children ages 7-14 years old who received both standard clinic treatment and combined clinic-internet treatment had significant improvement in anxiety symptoms and were more likely to be anxiety free than wait-list controls. This improvement was maintained at 12-month follow-up where approximately 80% of BRAVE-Online users remained anxiety free.⁹

When Should iCBT be Considered for Child and Adolescent Patients?

iCBT has generally been found to be effective for patients with mild-to-moderate symptoms of anxiety and/or depression.^{1,2} Providers should consider the following prior to recommending iCBT:

- **Motivation and cognitive ability of the patient:**

Patients who are motivated for treatment are more likely to remain adherent to the program. Patients must have sufficient cognitive ability to work through the program content, with some assistance from parents, as needed.

- **Likelihood of receiving no treatment or support:**

A variety of factors may make it difficult for patients to receive in-person treatment, such as transportation challenges, lack of available therapists in the community, or perceived stigma of seeing a therapist regularly. In these cases, iCBT programs may be good treatment options, especially when taking into consideration some patients may not receive treatment if not for iCBT.

- **Safety:** iCBT is not recommended for patients experiencing an acute crisis or severe anxiety and depression.¹ iCBT is not currently indicated for patients with psychosis and bipolar disorder as there have been fewer studies and applications for more severe conditions. The programs do not actively monitor for safety or self-harming behaviors. Prior to initiating iCBT, clinicians should screen for severity of the symptoms and must assess for suicidal ideation, mania, and psychosis. In these cases, the provider should follow the patient closely in-person and may consider initiating iCBT when severe symptoms have improved and the patient is stabilized.

How Can iCBT be Incorporated Into Treatment?

iCBT may be utilized as a component of an overall treatment plan. iCBT can be used as a stand-alone therapy option for patients with mild-to-moderate depression and anxiety who receive medication management from

a child psychiatrist. Another way to utilize iCBT is as an adjunctive therapy for patients who already receive in-person therapy. Used in this way, iCBT can be utilized to enhance care between therapy appointments. The iCBT programs are accessed online and their content can serve as homework for patients. Additionally, iCBT may be utilized to space-out appointments as patients become more stable. Through this hybrid model, youth are given independence to work through the iCBT program for symptom management while their clinician still has an active role in guiding their progress.

Clinicians should also consider some of the challenges associated with implementing iCBT. The most common challenge with iCBT programs is that patients often do not complete the entire program, which has been shown to decrease overall effectiveness.¹ However, studies have demonstrated that reminder calls to patients may increase adherence.¹ One way to address this is to implement a reminder system, through email, phone calls, or text messages, for patients to complete the iCBT program. Some programs such as BRAVE-Online also have a built-in email reminder system to help facilitate this process. Alternatively, a patient may print out weekly summaries to share with the clinician during in-person sessions. Given reminder systems and in-person progress reviews have been shown to be associated with increased adherence to iCBT, it is likely these tactics will also work with youth.¹⁰ However, further research is needed to determine the best approaches for enhancing iCBT adherence.

Conclusion

As child and adolescent psychiatrists, we provide care for a population that is young and tech savvy. In order to optimize treatment, it is important child and adolescent psychiatrists learn about iCBT, evaluate it for themselves, and understand how the treatment modality can be feasibly incorporated into practice. As a starting point, we encourage clinicians to further investigate the iCBT options reviewed in this paper. For those seeking more information, recent meta-analyses can provide a listing of additional iCBT programs.

iCBT programs are being developed and backed by a growing body of evidence. They present an opportunity for patients to become more involved in their own care, and for clinicians to be engaged in the evolving landscape of mental health care.

Take Home Summary

CBT interventions delivered via the internet (iCBT) can make mental health care more accessible. iCBT programs are being developed and backed by a growing body of evidence. They present an opportunity for patients to become more involved in their own care, and for clinicians to be engaged in the evolving landscape of mental health care.

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About the Authors

Jenny Nguyen, MD, is a PGY-2 resident physician in Psychiatry at the University of Washington. She also currently serves as the Area 7 Resident-Fellow Member Deputy Representative for the APA Assembly. She attended medical school at the David Geffen School of Medicine at UCLA, where her work on this paper began. Her interests include child, adolescents & transitional-age youth mental health, suicide prevention, technology innovation for mental healthcare, and quality of care for Asian American communities.

Patricia Lester, MD, is the Nathanson Family Professor of Psychiatry at the UCLA Semel Institute, where she directs the Division of Population Behavioral Health within the Department of Psychiatry. She also serves as the Director of the Nathanson Family Resilience Center, Medical Director of the Family Stress, Trauma and Resilience Service, Co-Director of the Center for Child Anxiety Resilience Education and Support, and the founding leadership team for the Pritzker Center for Strengthening Children and Families. Dr. Lester has sustained a career-long focus on developing and disseminating preventive interventions, practices, and policies that support child and family resilience in the context of trauma and adversity. Her research and leadership has focused on the study of translational and implementation processes needed to bring evidence-based prevention to scale within systems of care and community settings.

Jessica Jeffrey, MD, MPH, MBA, is an assistant clinical professor in Child and Adolescent Psychiatry at the University of California, Los Angeles, where she is the Associate Director of the Division of Population Behavioral Health and Associate Medical Director of Ambulatory Services for the UCLA Department of Psychiatry and Biobehavioral Sciences. She is also the Lead Child Psychiatrist for UCLA Behavioral Health Associates. Her interests include systems of care, health technologies, integrated behavioral healthcare, and family-based resilience-enhancing treatment models.

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