

Preventing Depression in At-Risk Adolescents: The CATCH-IT Intervention Program



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Adolescent Depression



- Point prevalence rates of 3-8% (Horowitz et al., 2011)
- Average age of first onset = 15 years (IOM Report, 2009)
- Lifetime prevalence rate of depression by end of adolescence = 25%
- Relapse rate of 40% within 2 years; 75% within 5 years (Lewinsohn et al. 1994; Kovacs et al. 1984a,b)
- Symptoms of depression in adolescence are associated with risk for full-blown disorder (Rhode et al., 2009)
- Most cases of recurrent adult depression have initial onsets during adolescence (Costello et al., 2002)

Consequences of Adolescent Depression



- **Short-Term**
 - Difficult family/peer relationships
 - Impaired school and work performance
 - Increased risk for substance abuse
 - Increased suicidal behavior
- **Long-Term**
 - Poor functional outcomes in adulthood
 - Reduced life satisfaction
 - Higher rates of suicide attempts
 - More psychiatric and medical hospitalizations
 - Lower educational attainment
 - More time out of work

Adolescent Depression and Suicidal Behavior



- **Suicide is the second leading cause of death among adolescents in the US** (Hoyert & Xu, 2012)
- **16% of U.S. adolescents reported seriously considering suicide in one-year period** (CDC, 2012)
- **8% of U.S. adolescents report making a suicide attempt in one-year period** (CDC, 2012)
- **More than 50% of adolescents who completed suicide had a mood disorder at the time** (Nock et al., 2013)

Why *Prevent* Adolescent Depression?



- **Treatments for adolescent depression work, but only 50-60% of those treated in controlled research studies show improvement** (Brent et al., 1997; Emslie et al., 1997; Mufson et al., 1999; TADS, 2004)
- **Evidence-based treatments are less helpful the longer the duration of the depressive episode** (Curry et al., 2006)
- **Relapse is quite common, with 40% of teens relapsing within 2 years, and 75% relapsing within 5 years.**
- **Prevention is less expensive, and less disruptive, than waiting for an episode to emerge and trying to treat it.**
- **Prevention research suggests that there is evidence for long-term benefits from depression prevention efforts** (e.g., Beardslee et al., 2013).

What is CATCH-IT?



- A primary care, Internet-based depression prevention program for at-risk adolescents
- Targets teens ages 13-18
- Uses design elements and interactive components to engage adolescents
- Teaches standard, evidence-based approaches to depression prevention:
 - Behavioral activation
 - Cognitive behavioral approaches
 - Interpersonal psychotherapy
- Includes parent intervention

Why the Primary Care Setting?



- Teens go to their primary care doctors routinely.
- ¼ of all visits to pediatrician are for behavioral health concerns
- Teens are receptive to advice from primary care doctors.
- Primary care doctors can learn motivational techniques.
- May reduce disparities in depression outcomes across racial and ethnic groups.

Why Use the Internet?



- **Teens are comfortable on the Internet.**
- **Teens have easy access to computers and the Internet.**
- **Internet programs may be more acceptable to teens than individual or group therapy.**

Feasibility Study



- **Comparing two mechanisms of engagement**
 - Motivational Interview (MI)
 - Brief Advice (BA)
- **On-line intervention for adolescents (CATCH-IT), Parent booklet**
- **40% ethnic minority, 48% female, mean age 17, mean zip code income below US average**
- **Significantly more time on website, more characters typed with MI than BA condition**
- **Significant change in depressive symptoms with both conditions**
- **Significantly fewer depressive episodes with MI than BA condition**

Promoting Adolescent Health (PATH)



- **Funded by RO1 grant from National Institute of Mental Health**
- **Multicenter study based in Boston (HVMA, private practices) and Chicago (University of Illinois, Northshore University Health System)**
- **Total of 400 study participants (200 Boston, 200 Chicago)**
- **At each site: 100 assigned to active arm, 100 to educational control**

Hypotheses



At follow-up, relative to teens in the Education Group, Teens assigned randomly to the CATCH-IT intervention will evidence:

- A lower incidence of depressive episodes
- Fewer depressive symptoms

Study Design

Screening in Primary Care



Eligibility Assessment



Consent and Randomization
Baseline Assessment (Time=0)



CATCHIT
N=200



Self-Assessment via Internet at 2, 6, 12, 18 and 24 months

Structure Psychiatric Interview at 2, 6, 12 and 24 months



**Attention Monitoring
Psycho-Education
(Health Education)**
N=200



The PATH Study Screener



The Cambridge Pediatrics Department at Harvard Vanguard Medical Associates, in collaboration with Wellesley College, is involved in a research study promoting adolescent health, and would appreciate your help in answering these questions. After answering these questions, and sharing your responses with your provider, s/he may tell you more about this research study.

The PATH Study (Promoting Adolescent Health) Adolescent screen

Here are some questions about depression and your mood.
Have you had any of the following problems during the last 2 weeks?

Please circle Yes or No

1. During the last 2 weeks, have you felt less interested in doing activities you used to enjoy?	YES: <u>Nearly every day</u> in the past 2 weeks.	YES: <u>A few days</u> in the past 2 weeks.	NO
2. During the last 2 weeks, have you been feeling down, depressed, irritable or hopeless?	YES: <u>Nearly every day</u> in the past 2 weeks.	YES: <u>A few days</u> in the past 2 weeks.	NO

If you answered "yes" to either of these questions, you may be a candidate for the PATH Study that teaches adolescents and young adults coping skills using an Internet-based learning program.

Eligible Teens



- **Ages 13-18**
- **Current symptoms of depression (CESD \geq 20) and/or past episode of depression**
- **NO current depressive episode**
- **NO history of cognitive behavioral or interpersonal psychotherapy**
- **NO current significant drug/alcohol abuse**
- **NO current significant suicidal ideation**

CATCH-IT Dashboard



HOME

[Settings](#) | [Logout](#)

[Current Program](#)

[My Change Progress](#)

[I Am Feeling](#)

[Roadblocks](#)

Project CATCH-IT is a community and internet-based project designed to teach coping skills to teenagers and young adults. Coping skills like those taught by Project CATCH-IT have been successfully taught to youth through face-to-face counseling. The purpose of this internet intervention is to help teach you resiliency so you can achieve your life goals and reduce risks of becoming depressed in the future. It is your physician's hope that you will find this website helpful. This website is intended to teach you how to beat the blues on your own time. **Each section has at least 2 chapters that cover different topics. These topics include:**

WHAT YOU WILL LEARN: Section basics and Chapters
REVIEW: Recap what you learned in the last module
LESSON: Questions, examples, and discussion
STORIES: Read how people like you apply the skills in each module to their lives
SKILL BUILDERS: Apply what you learned to your own life
FEEDBACK: Tell us what you think about the program or what you learned
WRAP UP: See the big picture of each module
DOING GOALS: New things you can learn or ways of training yourself
REWARD: Something fun you can do on the web

Program Progress



Your program progress bar shows you how many module groups you've completed. A green circle means you can visit or revisit that group, an orange circle means you're working on that group, and a black circle means you can't access that group yet.

Project CATCH-IT is made up of 6 sections that we recommend you read in sequence.

Click one of the links below to continue!

HELP
FREEDOM
LIFE
NEGATIVE
SKILL
RESILIENT
SHAKE
CONFLICT
BLUES
HELP
FREEDOM
LIFE
NEGATIVE
SKILL
RESILIENT
SHAKE
CONFLICT
BLUES

Behavioral Activation

“Opening Page”



The screenshot shows a web application interface with a navigation bar at the top containing the following tabs: "Current Program", "My Change Progress", "I Am Feeling", and "Roadblocks". Below the navigation bar, the page information is displayed as "Module: 2/14 Page: 1/19" and "CATCH-IT". A "Next" button with a right-pointing arrow is visible. The interface is overlaid on a red background that features a photograph of the rear of a white bus. Large, bold, white text is superimposed on the red background, reading "GOING OUTSIDE IN".

Increasing Mastery and Pleasure To Lower Depression.

The way to improve your mood is through your actions: there are two different ways to do this: First, you can do things well - **we call this 'mastery'**. This refers to little activities and big ones: if you play well on a team (even though you miss the goal), you have shown mastery. If you use technology (e.g., internet searches) to get an answer to a question, then you have shown mastery. If you take care of yourself each morning with a shower or eating breakfast, you have shown mastery. The task itself does not have to be difficult; in fact you want to show mastery with easy things, like sitting here. The key point is not how successful you are, but how much of a sense of mastery you have. If your friend did this activity the same way, would you say that they had mastered it.



The second way to learn how situations and behaviors influence mood is to evaluate pleasure - doing things that feel good. **We call this 'pleasure'. It varies with activity and situations.** Do you enjoy going to the movies - does it increase if you are with a good friend, does it decrease if a guy is blathering next to you on his cell phone? The context matters. These activities invoke pleasure and displeasure. Its not necessary to have pleasure all the time, but a little pleasure or enjoyment each day in small things (for example, eating food that you really love), can make the difference in boosting your mood.

Cognitive Behavioral Therapy

“Opening Page”



Current Program My Change Progress I Am Feeling Roadblocks

Module: 5/14 Page: 1/19

CATCH-IT

Next

FREEDOM

FROM NEGATIVE

THOUGHTS

How can I train my thoughts?

The methods used in this module to help you train your mind are part of Cognitive **B**ehavioral **T**herapy (CBT). The idea behind CBT is pretty basic: by changing your beliefs/thoughts, you can change the way you feel and act. No matter the situation, **you have the power** to decide how you will think about that situation and react to it. Getting stuck in negative thinking is just a bad habit: it might be hard to break, but it can be done.

Now that you've learned how your emotions and patterns of behavior are affected by the world around you (thinking "outside-in"), it's time to learn how to change and control your thoughts to improve your mood. CBT can teach you how to better understand the way you think, including how to identify thoughts that are negative or unhelpful. Using CBT, you can learn how to change and control your emotional responses to unpleasant situations **in the moment**, helping you to avoid sadness or negative emotions and improve your mood. You will feel better about yourself, other people, and the world around you.



Interpersonal Psychotherapy

“Opening Page”



The screenshot shows a web application interface with a blue header and a white content area. On the left side of the interface, there is a photograph of a young girl with long brown hair, wearing a white short-sleeved dress with a decorative neckline. The main content area has a navigation bar with four tabs: "Current Program", "My Change Progress", "I Am Feeling", and "Roadblocks". Below the navigation bar, the text "Module: 9/14 Page: 1/25" is displayed on the left, and "CATCH-IT" is displayed on the right. Below "CATCH-IT", there is a "Next" button with a small yellow diamond icon. At the bottom of the content area, the text "RELATIONSHIP SKILL TRAINING" is displayed in large, bold, white letters on a dark blue background.

Module 9: Skill Builder

It wouldn't make sense to try and improve your social skills by just reading about them, just like watching the Olympics won't make you better at pole vaulting. You have to go out and practice your skills in the real world with real people. In each module, you will be asked to complete a homework assignment. No one can make you do it: it's up to you to prioritize getting these assignments and get them done.

As you work through the homework, you should begin to see how healthy communication in relationships can help support you as you grow into your resilient adult self, balancing need for support and independent thought and identity. If it doesn't work for you, please tell us. Feel free to ask for help from people around you (after all this is about relationships,) and talk to your doctor if you feel uncomfortable or upset while doing this program. Go out and do what you can. Good luck!

1. Think about the goals that you wrote down earlier in the program. List any goals that require working or being with other people.

2. Describe a recent situation in which you noticed you got down after some conflict with a friend or family member. What do you think the problem was?

Story

Kristen

Jamal

Ryan

Sophie

Jon

Yolanda

On Sunday night, Yolanda can't sleep. She keeps second-guessing her performance at auditions. She'd thought she'd done really well at the time -- Mrs. Trubac had seemed please, Nina had given her a big hug afterwards, and even Diego had complimented her. (Diego still hadn't contacted her after their date on Friday. Maybe he didn't like her? She'd already seen that he'd been on Facebook updating his profile, but he didn't have enough time to contact her.) But still -- maybe she hadn't been right for the part. Maybe she had been a little flat on her song. Maybe she wasn't tall enough or thin enough for the part. Maybe she just sucked hard, so hard that no one would ever want to cast her ever again. And really, honestly, she should have done more homework this weekend, but she just couldn't focus...

The more she worries, the more worked up she gets, and the harder it is for her to fall asleep. She finally falls asleep around 3 AM -- which means she's so exhausted she keeps hitting snooze, which means she doesn't have enough time to go through her morning routine, which means she looks like total crap when she gets to school and doesn't have time to check the list before homeroom.

Immediately after homeroom, she runs to the auditorium to check. She got Carmen: the lead. All of her worries fade away.

See what **Yolanda** has to say...



[❖ Prev](#) [Next ❖](#)

Story

Kristen

Jamal

Ryan

Sophie

Jon

Yolanda

Ryan's weekend is shaping up to be the best he's had in a long time. He just finished his summer job applications, and the test scheduled for Monday was canceled. Best of all, his mom is taking him for the weekend, and he's excited to see her and his younger brother. Ryan comes home from school on Friday wearing a rare smile, expecting them to already be there.

Instead, his stepmother is waiting for him. "Your mom had to cancel," she says. It may be his imagination, but Ryan is pretty sure that she looks smug as she delivers the bad news.

Ryan's smile disappears, sure that the weekend is ruined. His mom has obviously been talking to his dad about what a wuss Ryan is. She probably doesn't want a kid like that any more than he does, and that's why she abandoned Ryan this weekend. His parents probably split up Ryan and his brother because they didn't want Ryan influencing him - and what parent, Ryan wonders, would want another son who's a freak? His parents don't love him, his stepmother hates him, and his brother is probably ashamed of him. No, it's not just his weekend that's ruined - it's his life.

Ryan feels completely miserable. He trudges upstairs and blasts the most depressing music he owns. That evening, his stepmother calls him down for dinner, and his dad knocks on his door afterwards with a plate of food, but he ignores them both.

See what **Ryan** has to say...

<http://www.youtube.com/watch?v=H914JFtOWjA>

Health Education Program Defined (parent program is similar)

Module	Module Content	Behavioral Target
1	AVOIDING ACCIDENTAL INJURY	Safety behaviors
2	NUTRITION FACTS AND MYTHS	Healthy diet
3	HEALTHY EATING ON THE GO	Healthy diet
4	HEALTHY TEETH AND GUMS	Dental health
5	BENEFITS OF CALCIUM AND VITAMIN D	Calcium and Vit D consumption
6	ENVIRONMENTAL HEALTH	Reducing exposure
7	FOODBORNE ILLNESSES	Reducing exposure
8	PROTECTION AGAINST SEASONAL ILLNESSES	
9	MENINGOCOCCAL MENINGITIS VACCINATION	
10	BICYCLE AND VEHICLE SAFETY MEASURES	Increase bike safety
11	FIRE SAFETY IN THE HOME	Increase fire safety
12	HUMAN PAPILOMA VIRUS VACCINATION	Increase vaccination
13	ALLERGIES	Minimizing exposure
14	LEARNING ABOUT MOOD	Awareness of when to seek treatment

Health Education Program (Parent program is similar)



[Settings](#) | [Logout](#) | [Help](#) | [Crisis](#) | [Support](#)

Dashboard

Program

Module: 1/14 Page: 1/6

Information for Teens

Next »

MODULE 1: FIRST AID AND INJURIES: Staying Safe

Tips for Surviving Shots:

1. **Distract yourself while you're waiting.** Bring along a game, book, music, or movie player — something you'll get completely caught up in so you're not sitting in the waiting room thinking about the shot.
2. **Focus intently on something in the room.** Find a picture, poster, or a sign on the wall. Concentrate on the details:
3. **Cough.** Research shows that coughing as the needle goes in can help some people feel less pain.
4. **Relax your arm.** If you're tense — especially if you tense up the area where you're getting the shot — it can make a shot hurt more.

Next »

Where We Are Now



- **N (enrolled)=182 (104 in Chicago; 78 in Boston)**
- **18 pediatric clinics across sites (10 in Chicago; 8 in Boston)**
- **1,000+ teens have been identified across site from screenings in primary care offices**
- **About 100 teens have been screened across sites based on letter campaign**

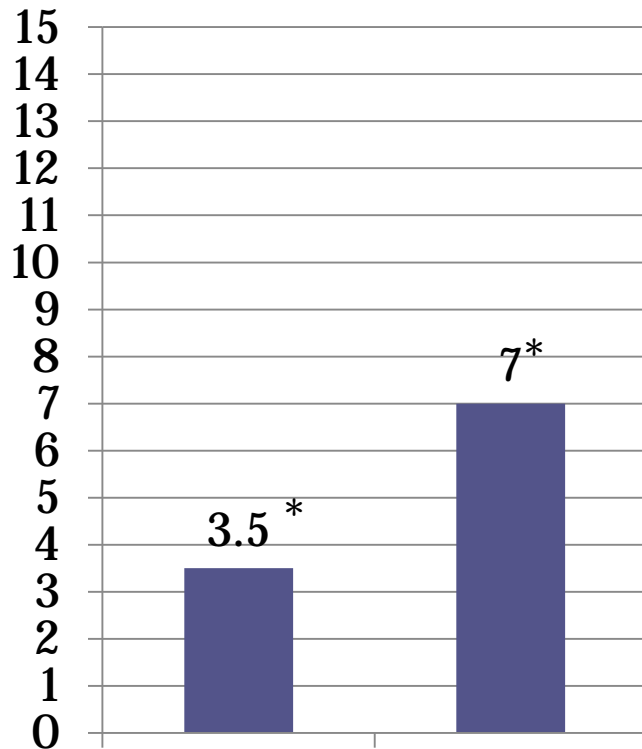
Cohort Description – Boston & Chicago



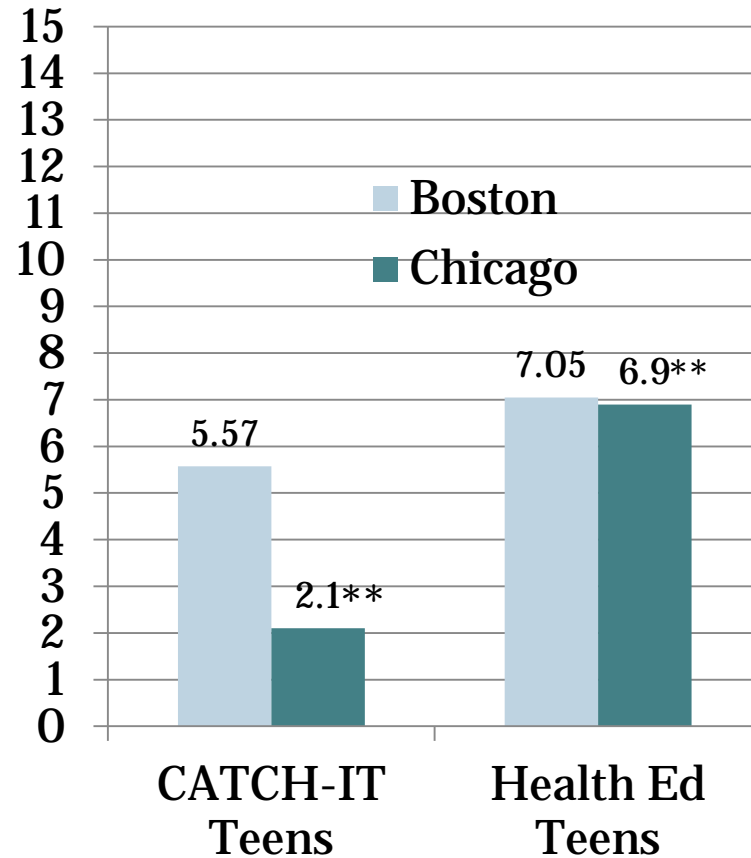
- N = 182 adolescents enrolled (144 randomized)
- Mean Age = 14.97 (SD = 1.51)
- 73% Female
- 53% Racial Minority
- 16% Latino
- Mean Baseline CES-D
 - Adolescent = 20.28 (SD = 9.28)
 - Parent = 11.19 (SD = 9.61)

Average Number of Modules Completed by Teens

Across Sites



By Site

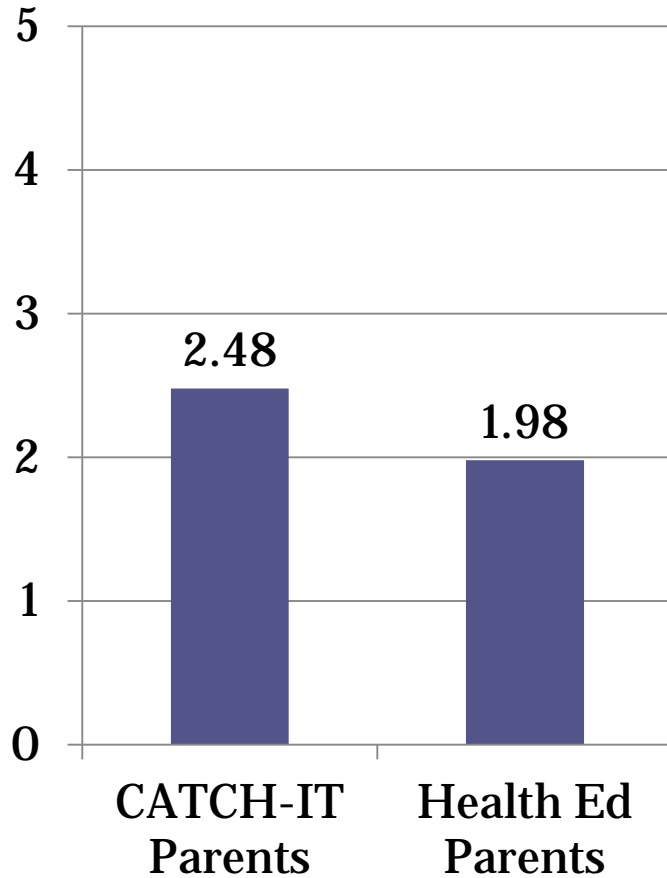


* Statistically significant difference between Total Teen CATCH-IT use and Total Teen Health Ed use

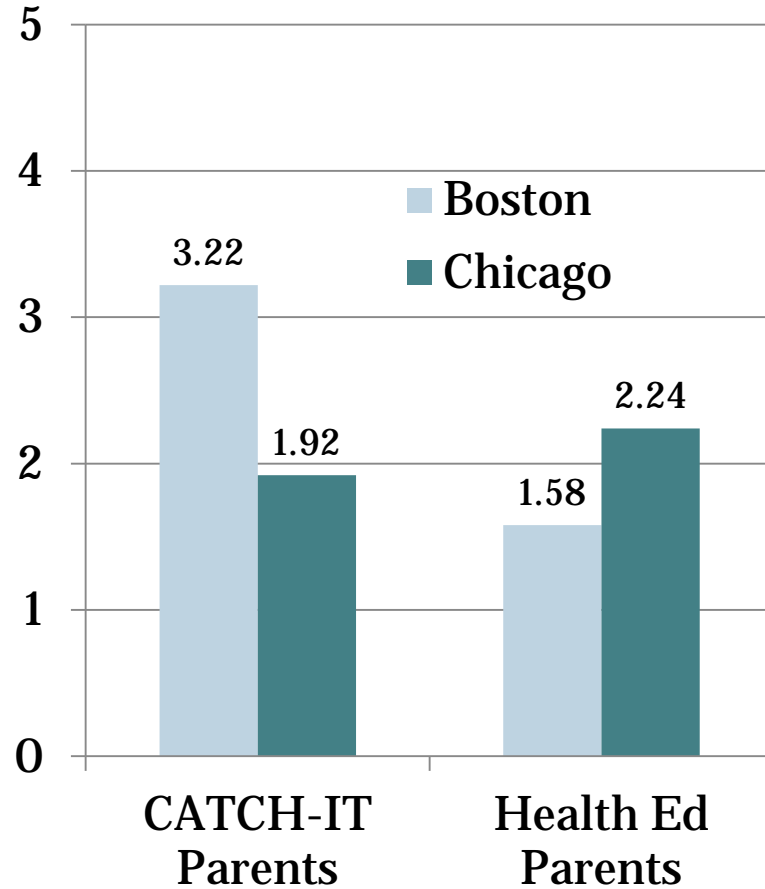
**Statistically significant difference between Chicago Teen CATCH-IT use and Chicago Teen Health Ed use

Average Number of Modules Completed by Parents

Across Both Sites

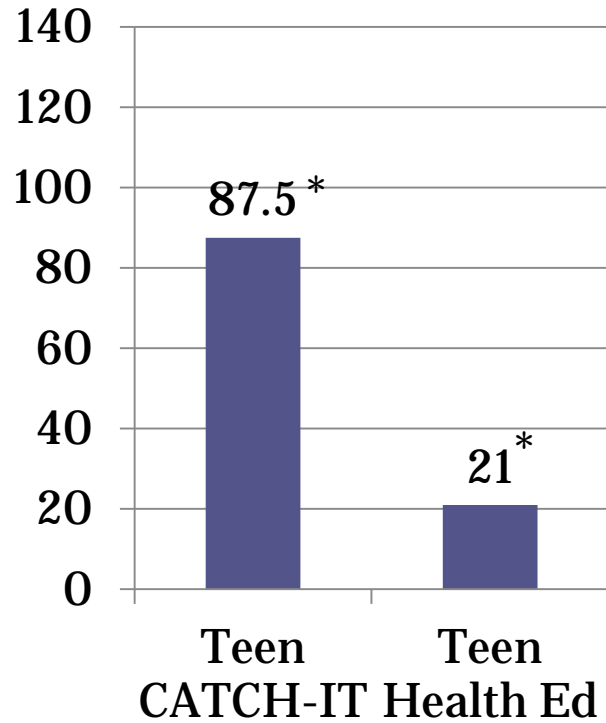


By Site

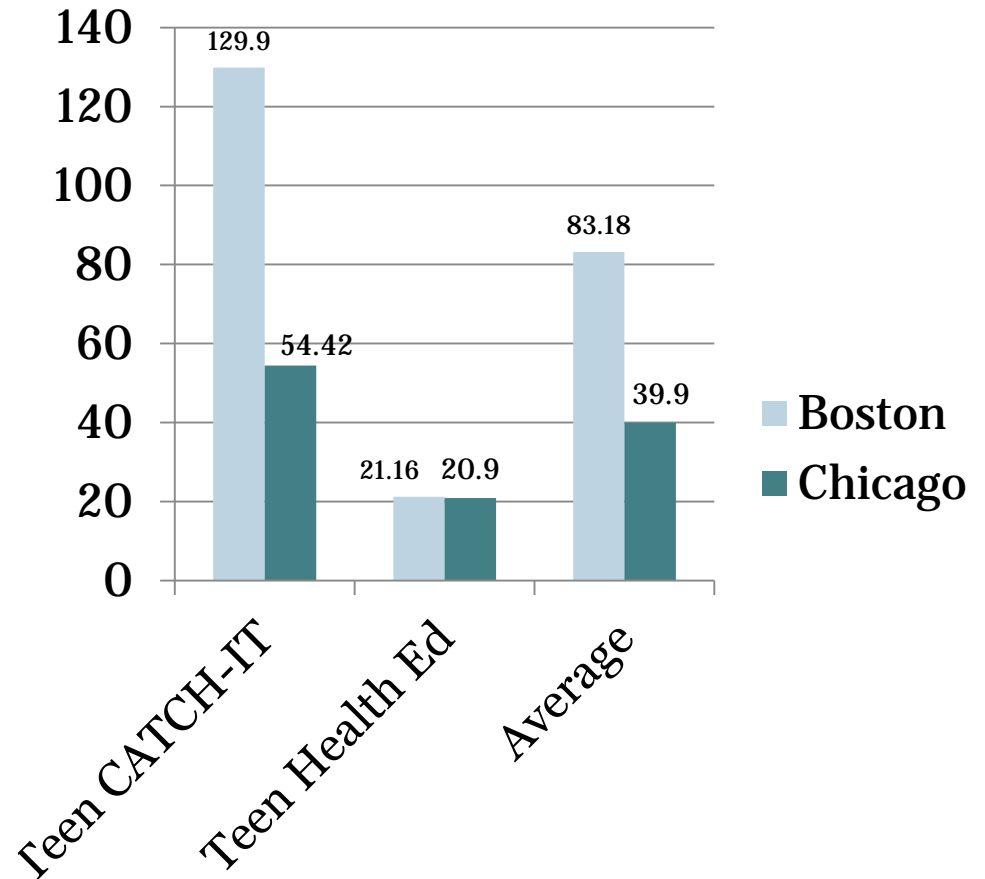


Average Number of Minutes Teens Spent on Modules

Across Sites

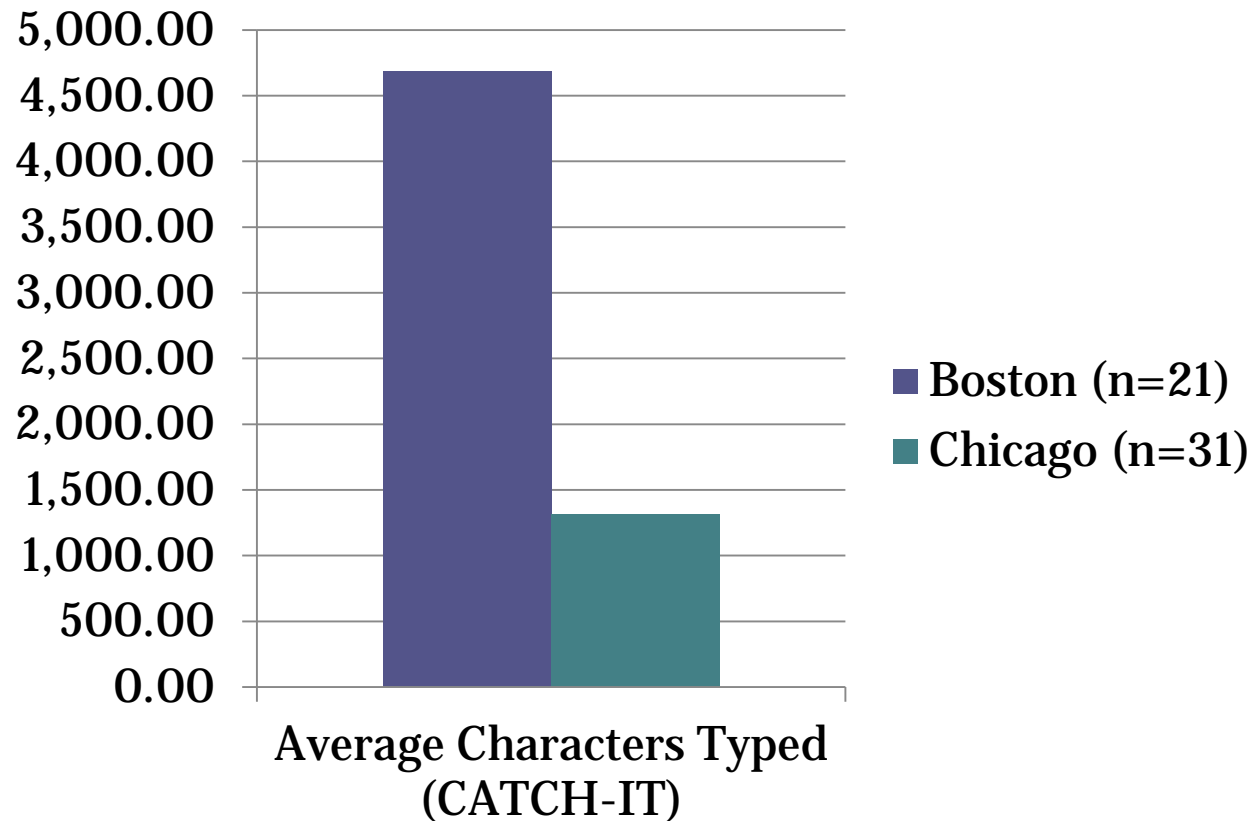


By Site



* Teens spent statistically more time on CATCH-IT than on Health Ed.

Average Number of Characters Typed per Module (Teen CATCH-IT Condition only) by Site



*Statistically significant difference between sites

Motivational Interview Completion



- **Completion of First Motivational Interview**
 - Chicago: 95% Teens
 - Boston: 100% Teens
- **Completion of 2 Month Motivational Interview**
 - Chicago: 77% Teens, 67% Parents
 - Boston: 73% Teens, 81% Parents
- **Completion of 12 Month Motivational Interview**
 - Chicago: 46% Teens, 40% Parents
 - Boston: 88% Teens, 100% Parents

Preliminary Outcomes – Boston & Chicago



- **At Follow-Up, N = 18 met criteria for Major Depressive Episode (MDE)**
 - N = 15 met sub-threshold criteria (10%)
 - N = 3 met full criteria (2%)
- **Incidence of those meeting full criteria for MDD**
 - lower than general population incidence per year (7%)
 - lower than moderate to high risk cohort incidence per year (14-21%)

Feedback



- **Teen Comments:**
 - “I love it”
 - “It’s making me feel better”
 - “It’s good information, and the site is easy to use”
- **Parent Comments:**
 - “The program is the best thing we’ve ever done”
 - “The program gives me great advice”
 - “It initiated conversation between my teen and me”
 - “The PATH Study is giving my teen the right messages”

Lessons Learned: Site Construction



- Challenge of finding a team that can handle both the artistic and the functional part of web design and programming.
- Importance of clearly identifying data strategies up front, before site is designed
- Importance of cost tradeoffs – taking a long view
- Issue of learning versus entertainment
- Don't forget ease of use, beauty and meaningful narratives

Lessons Learned: Engaging Sites



- Brief initial visits required
- Relational strategy works best
- Compensation strategy for each site may determine the best engagement strategy for that site
- Frequent meetings may be necessary
- IRB constraints

Lessons Learned: Enrolling and Retaining Participants



- Personal contact at screening may help
- Study advocacy by physician helps motivate teens
- Calling at different times of day/weekend evenings
- Meeting families at motivational interviews helps engage parents and teens
- Check-in calls are essential