



University of Louisville Depression Center

Computer-assisted Psychotherapy for Depression: Ready for the Mainstream?

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Disclosures

Jesse Wright

- Software for computer-assisted CBT:
Mindstreet, Empower Interactive
- Book Royalties: American Psychiatric Press Inc.,
Simon and Schuster, Guilford Press
- Grant support:
R01MH082762 (NIMH)
R21MH102646 (NIMH)
R18HS024047 (AHRQ)

What is Computer-assisted Cognitive-behavior Therapy (CCBT)?

- A fully developed program that engages patients in the core cognitive and behavioral methods of CBT.
- Typically includes a series of lessons or sessions that are done over a 4-16 week period.
- May be delivered on desktops, laptops, pads, and/or smartphones.
- May be guided (clinician supported) or unguided.
- Should be safe and secure (HIPAA compliant).
- May include clinician interface.

Advantages of Computer-assisted CBT (CCBT)

- Access/convenience
- Efficiency-treat more patients with available time
- Cost
- Delivery of evidence-based therapy
- Can provide learning/immersion experiences, skill building, interactive exercises, feedback, self-monitoring, homework enhancement, etc.
- Data collection and management

Disadvantages of CCBT

- No programs have been developed that have the empathy, wisdom, and flexibility of clinicians.
- Improvements are needed in personalization and customization.
- Completion rates have been low in some studies.
- AI is just starting to be employed.
- Moving from research based prototypes to wide-spread dissemination.

Learn

Current Lesson

All Lessons

Lesson 1: Basic Principles



Practice the skills from Lesson 1
Basic Principles

Review

Overview

Content

Homework

Lesson 1 Overview

Progress



You're making good progress.
Keep up the good work!

Takeaways

- Cognitions are the **thoughts** or **ideas** that run through our minds
- Our **cognitions** (thoughts) have a major effect on how we **feel** (emotions) and how we **act** (behavior)
- Events stimulate cognitions which lead to emotions which are followed by actions
- Cognitive therapy self-help methods teach you how to recognize and change distorted thinking

Kara User

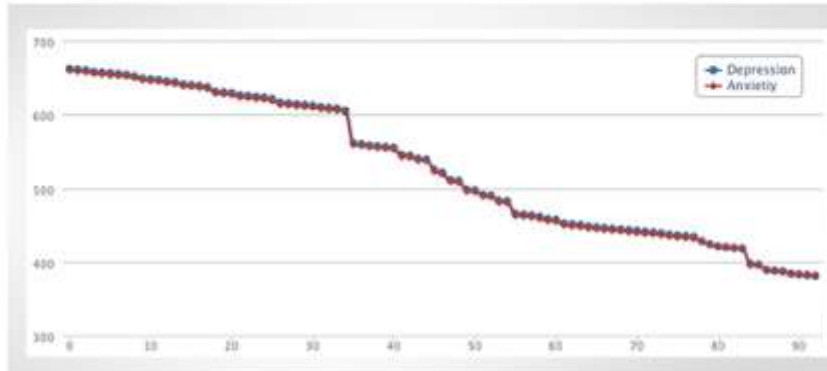
Progress

Activity

Profile

Clinicians

Progress Summary



2 Current Lesson
Identify Thoughts

Lesson 2: Identify Thoughts

Progress: 100% complete



Learning Comprehension



Homework

Record Positive Thoughts

✓ Completed on 02/21/2011 12:34 EST

✓ Completed on 02/21/2011 12:34 EST

→ View all

Record Negative Thoughts

✓ Completed on 02/21/2011 12:34 EST

Positive Changes in My Thinking

✓ Completed on 02/21/2011 12:34 EST

✓ Completed on 02/21/2011 12:34 EST

→ View all

Recent Activity

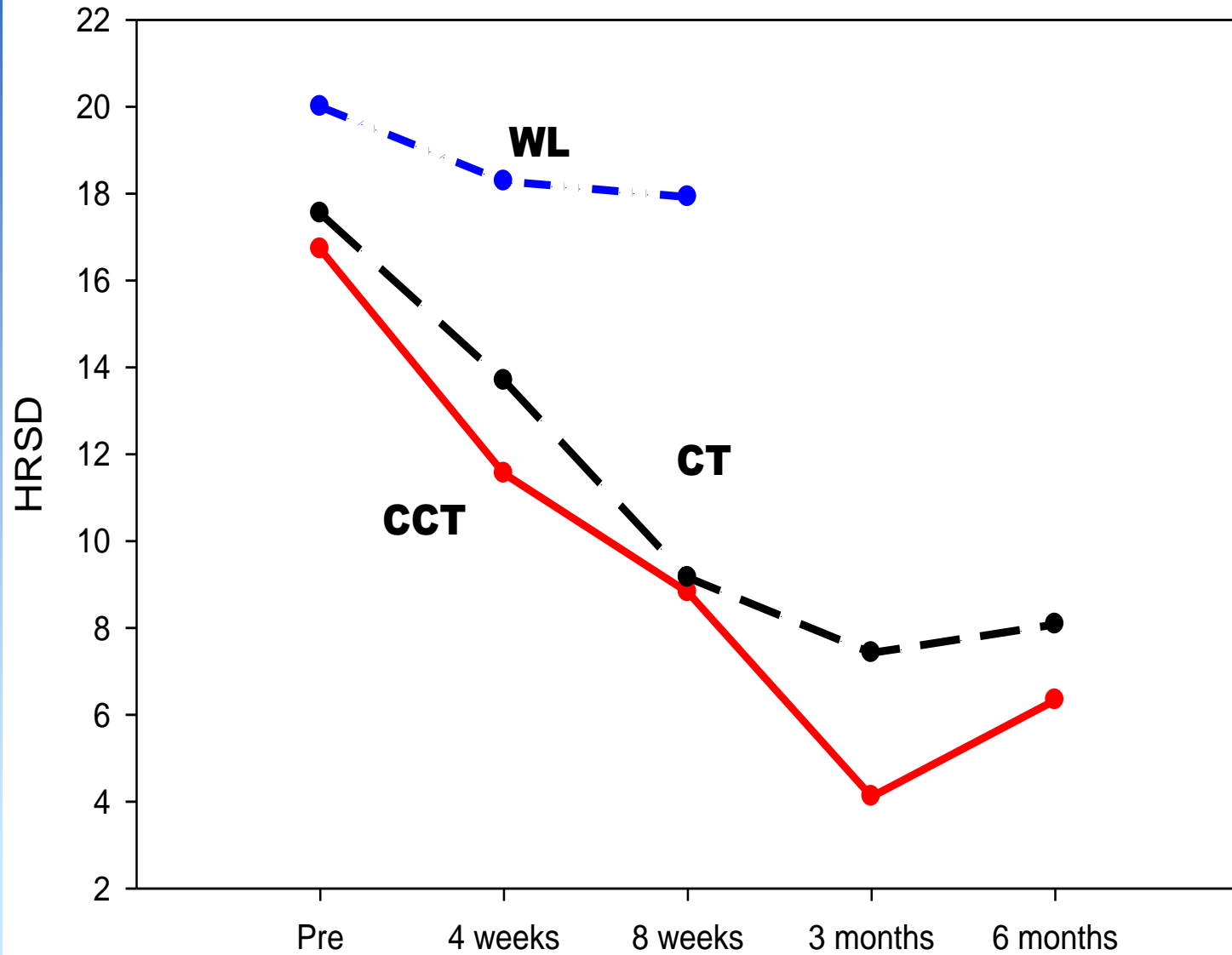
→ View All

Activity	Date
Logged out	April 07, 2012 06:05
Logged in	April 07, 2012 05:51
Logged out	April 07, 2012 02:19
Finished Record Negative Thoughts 554	April 07, 2012 02:17

Computer-assisted CBT: Research Team

- Michael Thase, M.D., Greg Brown, Ph.D., Marna Barrett, Ph.D., U of Pennsylvania
- Tracy Eells, Ph.D., Becky Antle, Ph.D., Rangaraj Gopalraj, M.D., U Of Louisville
- Paul McCrone, Ph.D., U of London
- Steve Wisnieski, Ph.D., U of Pittsburgh
- Jesse Owen, Ph.D., U of Denver
- Andrew Wright, M.D., U of Washington
- Anne Marie Albano, Ph.D., NYU
- Michael Otto, Ph.D., Boston U

Hamilton Rating Scale



Effect Sizes at End of Active Treatment

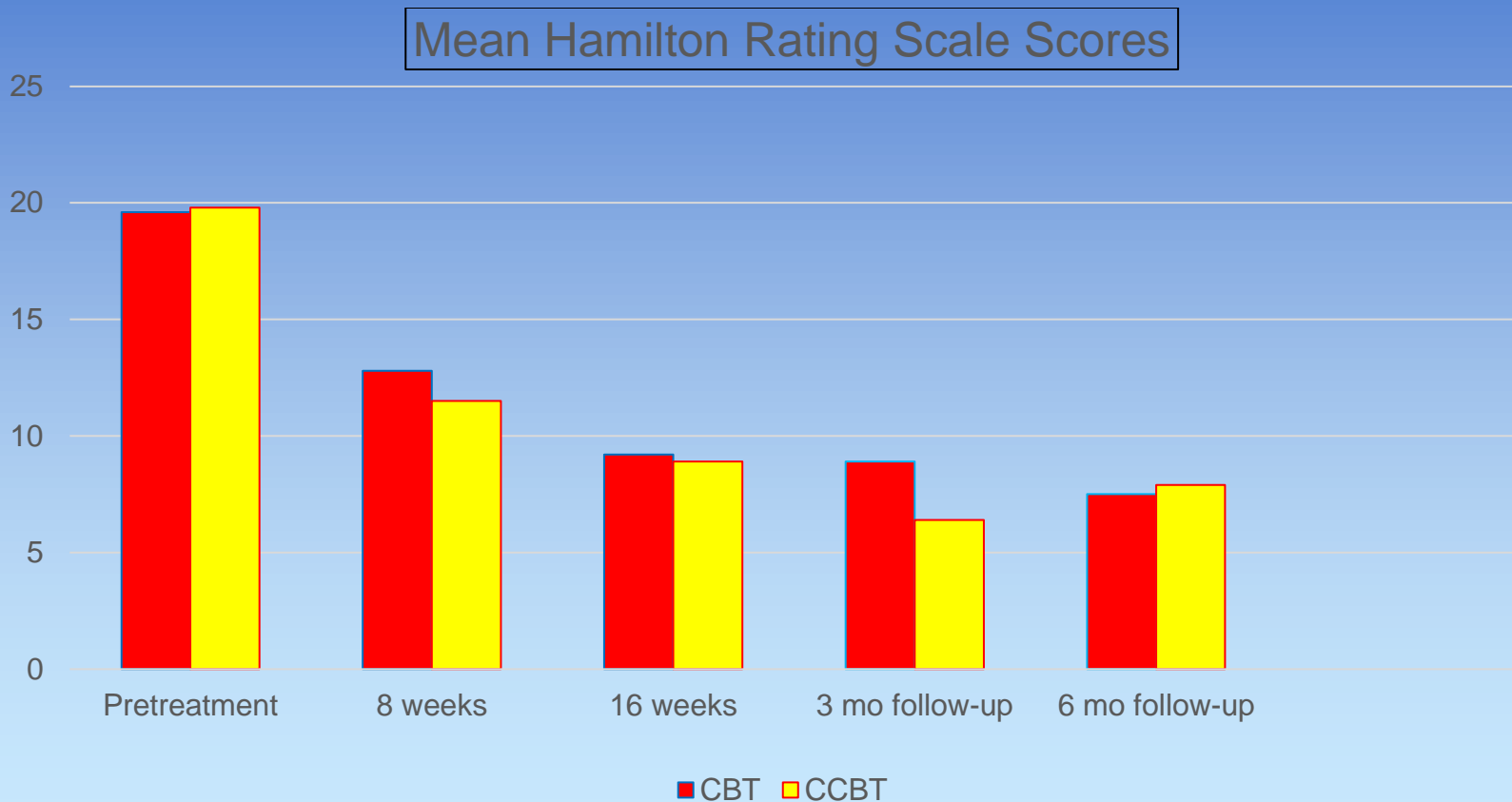
HRSD-17: Intent to Treat Analysis

- For CCT: $d = 1.14$
- For CT: $d = 1.04$
- No significant differences between treatments
- Drop out rate same in CCBT and CBT (15%)

CCBT for Depression: Replication and Extension

- Supported by NIMH R01MH082762
- 154 subjects
- Sites: U of Louisville, U Pennsylvania, U Pittsburgh, U London
- Random assignment of drug-free subjects to standard CBT (20 sessions) or CCBT (12 sessions)
- Clinician contact time in CCBT reduced by 2/3

CCBT vs CBT in 154 Drug-free Patients with Major Depression



CCBT for Depression in Primary Care

- Supported by R18HS024047 (AHRQ)
- 175 primary care patients with depression
- Treatment as usual (TAU) versus TAU + CCBT with Good Days Ahead over 12 weeks
- Clinician support via telephone with maximum of 20 minutes per week

CCBT vs TAU for Depression in Primary Care: Effect Sizes ITT Analysis

Time	PHQ-9	GAD-7	SWLS
Post-treatment	0.37**	0.33**	0.39**
3-month FU	0.53**	0.46**	0.50**
6-month FU	0.52**	0.25	0.49**

Wright et al., 2020; **p = < .01; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7; SWLS = Satisfaction with Life Scale

Beating the Blues

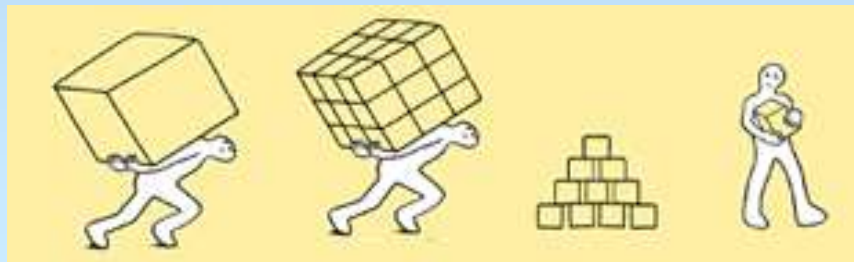


Computer-therapy program for anxiety and/or depression



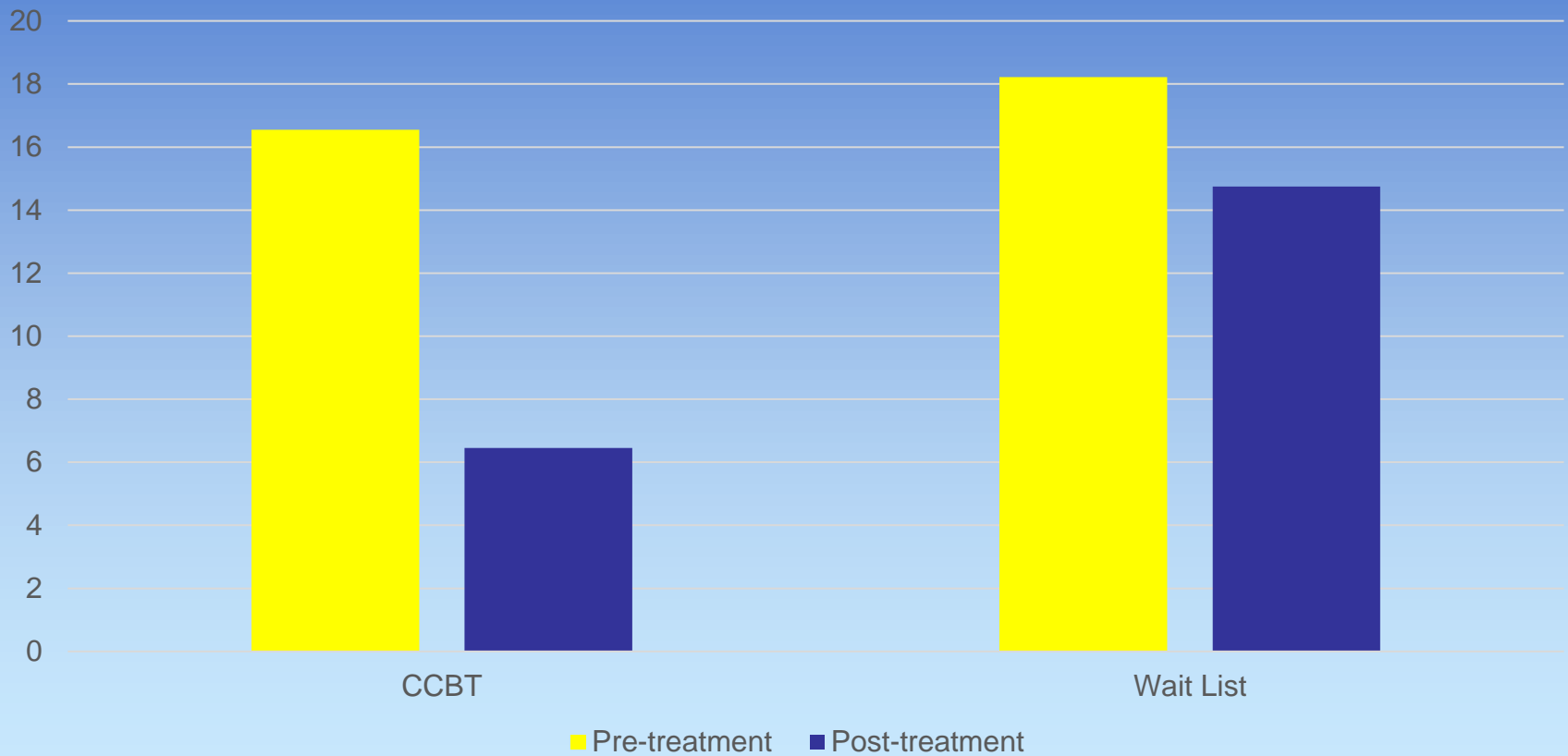
Developed by Judy Proudfoot (Institute of Psychiatry) in conjunction with Ultrasis plc

Collaborators: Jeffrey Gray, David Goldberg, Anthony Mann, Isaac Marks



Beating the Blues (US) with Clinician Support

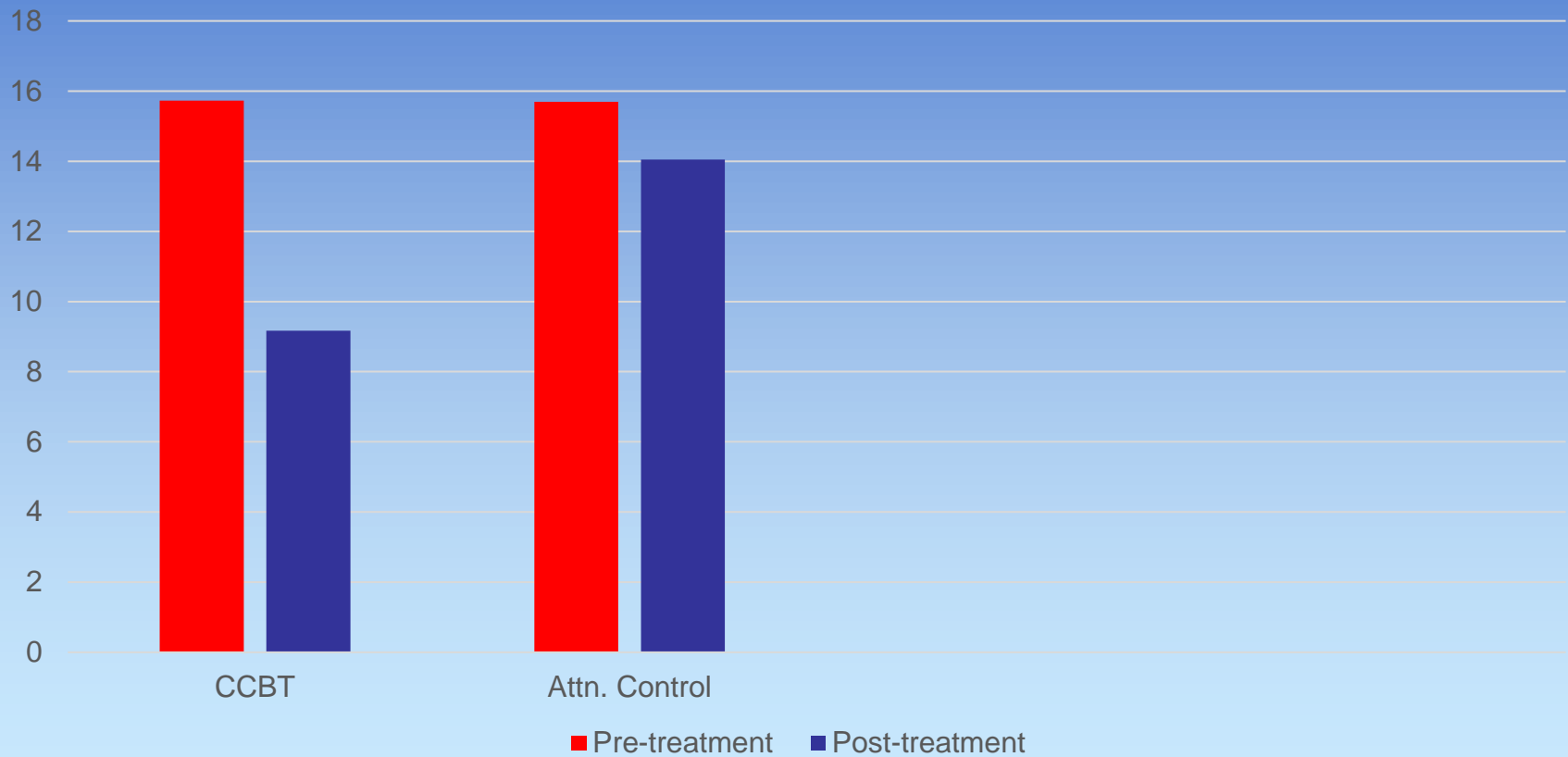
Mean PHQ-9 Scores



$g = 1.45$; Forand et al. Behavior Therapy 48:295-307, 2018

“Sadness Program” with Technician and Clinician Support

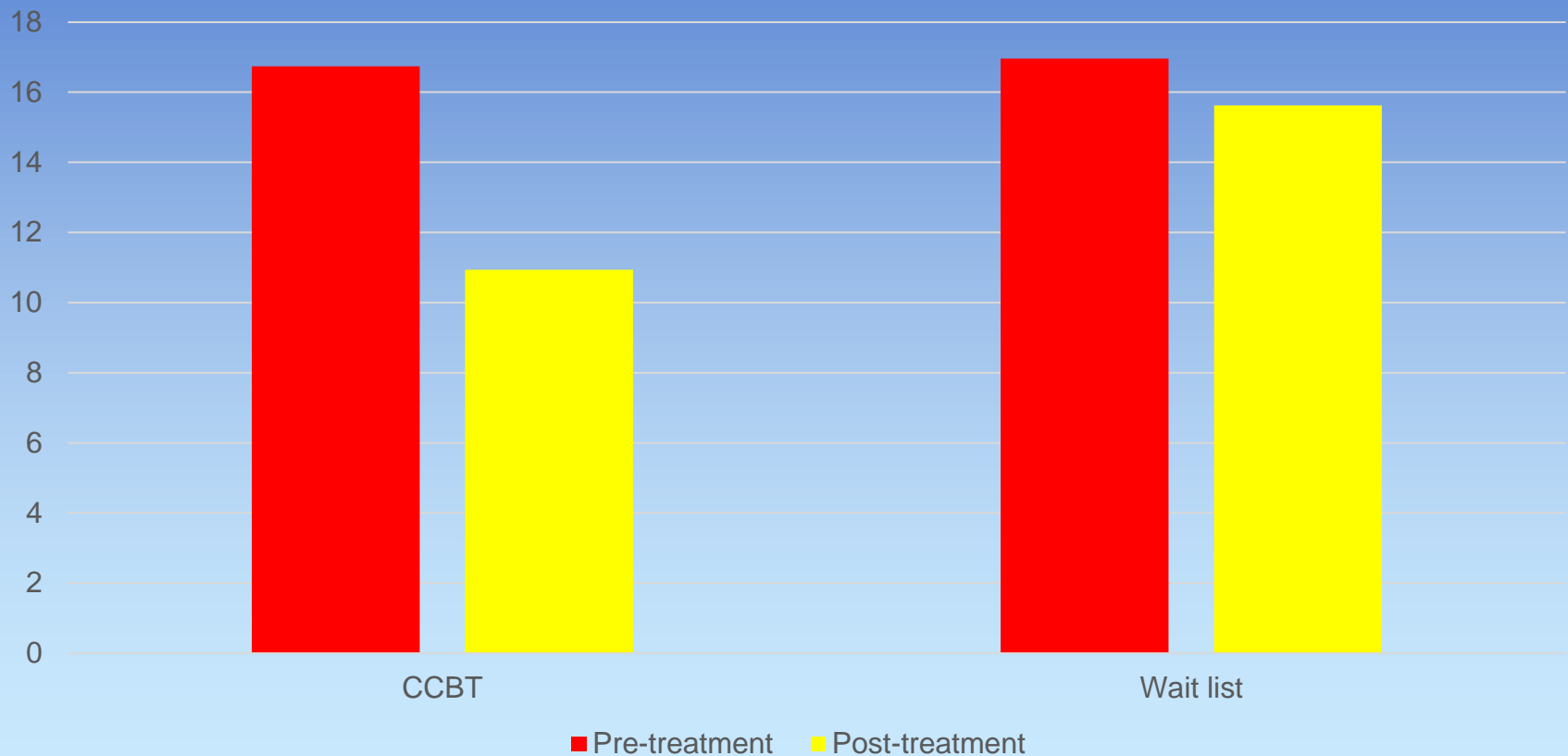
Mean HRSD Scores



$d = .80$; Rosso et al. *Depress Anx* 34:236-245, 2017

Deprexis with Technician Support

Mean HRSD Scores



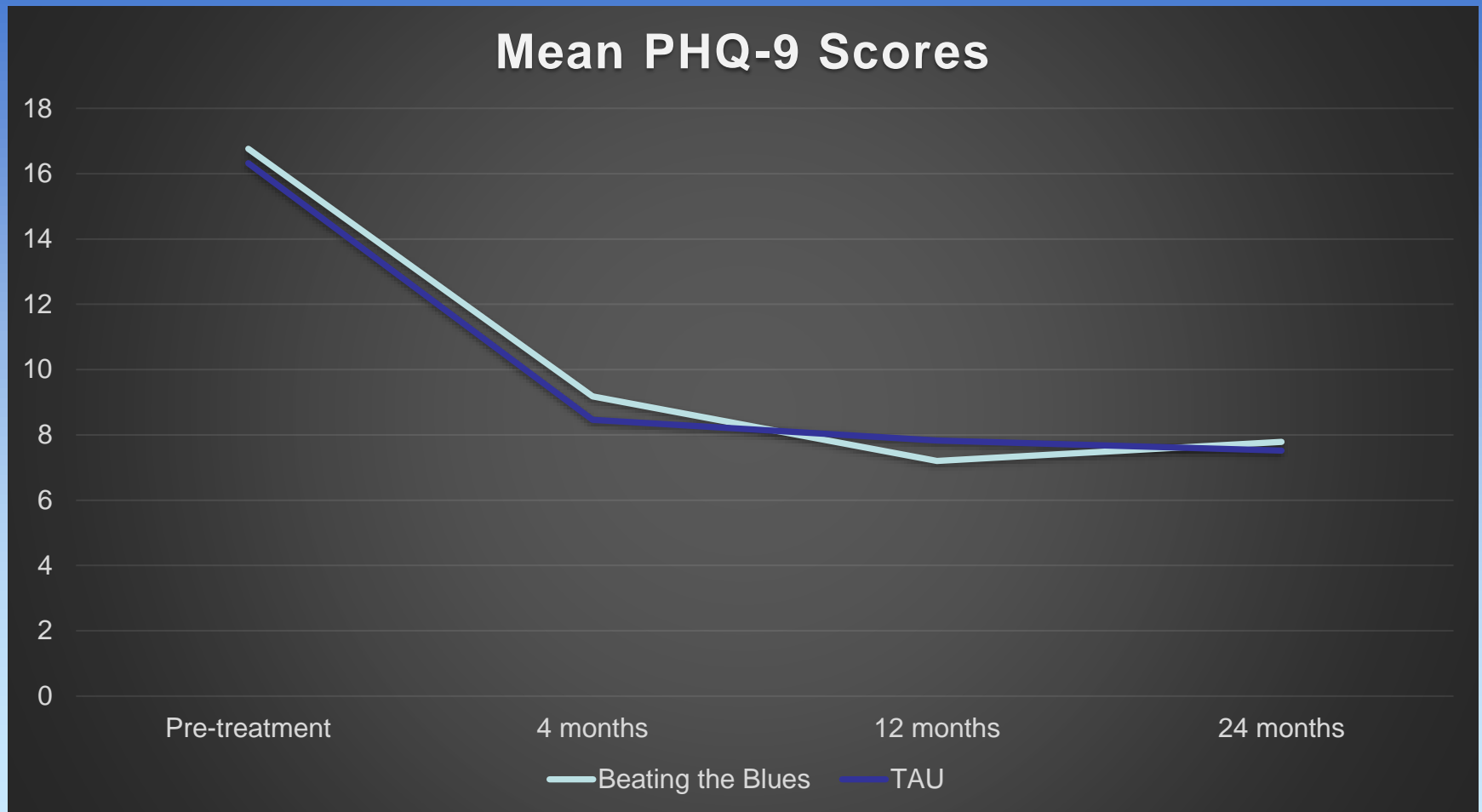
$d = .80$; Beevers et al. J Consult Clin Psych 85(4):367-380, 2017

Large-scale Study of Unsupported CCBT

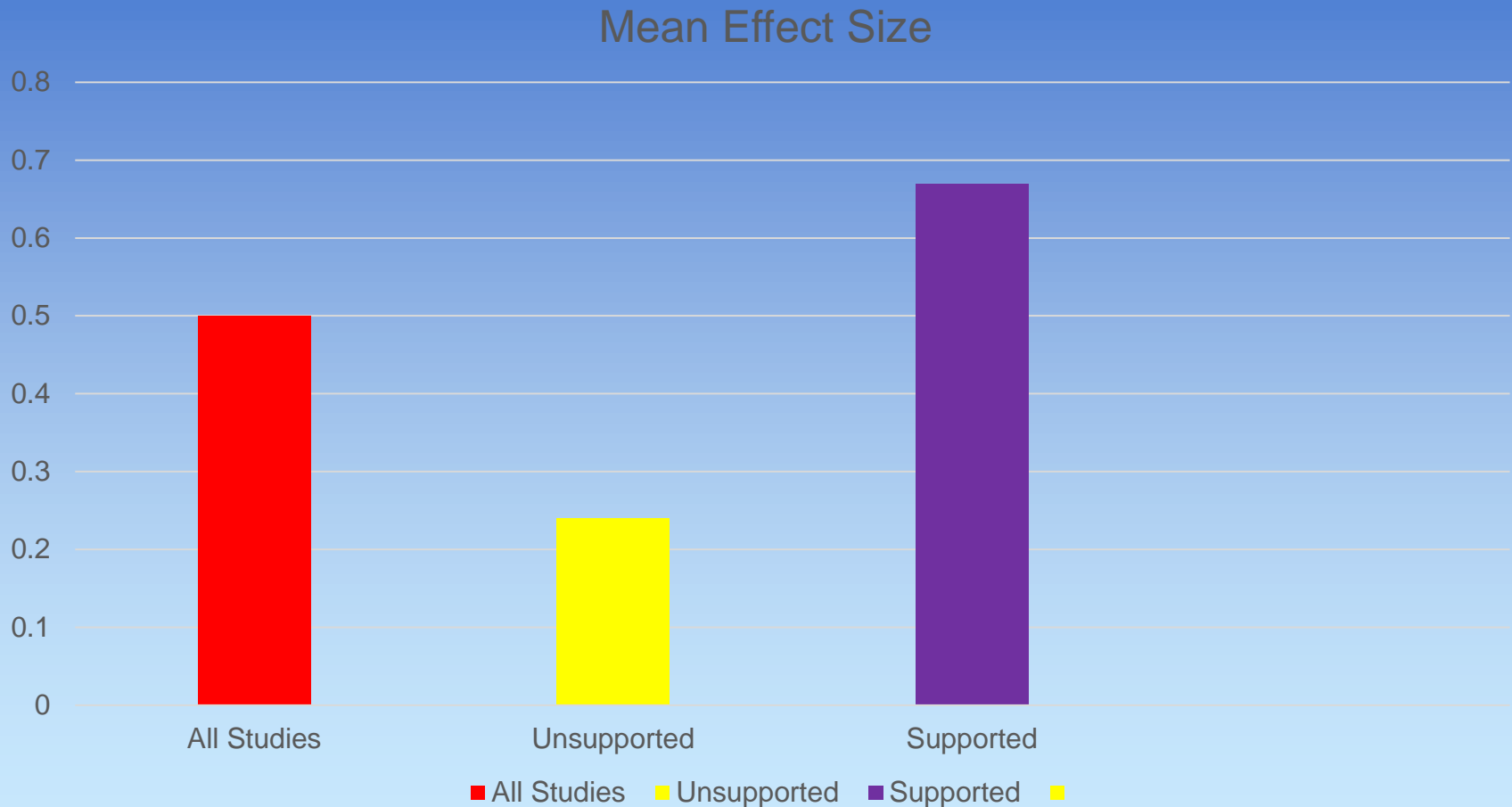
- 691 patients from 100 GP sites in UK
- Beating the Blues vs. TAU
- Mood Gym vs. TAU



Unsupported CCBT in Primary Care



CCBT for Depression: Meta-analysis



Wright et al. J Clin Psych 80(2):18r12188, 2019; 40 studies

CCBT for Depression: Meta-analysis

- Type of support influences effect:
 - email $g = .56$; telephone $g = .78$
 - face-to-face $g = .83$
- Completion rate influences effect:
 - rate not reported $g = .29$; $\leq 25\%$ $g = .41$
 - $\geq 75\%$ $g = .82$
- Setting influences effect:
 - primary care $g = .24$
 - non-primary care $g = .57$

Clinical Implementation of CCBT

- Try the program yourself.
- Choose programs with demonstrated effectiveness and safety.
- Orient patients to key features of program.
- Provide support (in office, telemedicine, email)
- Use clinician interface, if available, to monitor progress and guide treatment.
- Integrate CCBT into comprehensive treatment plan.
- Identify barriers to use of CCBT and try to find solutions.

CCBT Programs with Multiple Randomized Controlled Trials

CCBT Program	Link
Beating the Blues US	https://www.beatingthebluesus.com/
Deprexis US	https://us.deprexis.com/
Good Days Ahead	http://www.empower-interactive.com/solutions/good-days-ahead/
Mood Gym	https://moodgym.com.au/
Sadness Program	https://www.c4tbh.org/program-review/the-sadness-program/