



Results of

A Randomized Controlled Trial: The Effects of SuperBetter on Depression



The University of Pennsylvania
In collaboration with SuperBetter Labs, LLC



SuperBetter provides relief.

Participants became less depressed and anxious.

SuperBetter improves well-being.

Participants became more satisfied with their lives.

Specific SB content works especially well.

One version of SB provided the most relief.

This bulletin describes our scientific study of a tool called SuperBetter, which reduced users' depression and anxiety symptoms and increased their well-being.

Scientists have developed good treatments for depression, but many people who need help do not get it. Therapy can be costly, unavailable, or just too stigmatizing. The rise of smartphones and web-based programs has opened the door for new ways to support people who are striving to overcome depression and improve their well-being.

SuperBetter is a web-based and smartphone-based application that provides people with engaging, interactive content designed to help them achieve wellness goals. In this study, the University of Pennsylvania teamed up with SuperBetter Labs to test whether this application can help people overcome symptoms of depression.

In this study, two versions of SuperBetter were compared to a waiting list (control group). One version of SuperBetter targeted depression symptoms using strategies from cognitive-behavioral therapy (Beck, 1979) and positive psychotherapy (Seligman, Rashid, & Parks, 2006). The other version did not specifically target depression; it used quick and easy feel-good activities that had been popular with previous SuperBetter users.

This bulletin describes how the team conducted this rigorous trial, and then it outlines and explains the main findings. It focuses on the following questions:

- Does SuperBetter relieve depression?
- Does it also decrease anxiety and/or improve life satisfaction, social support, and self-efficacy?
- Which version of SB works best?

Method

How was the study done?

DESIGN

This study was a *randomized controlled trial*. All participants had an equal chance of being assigned to one of three groups:

- A group that used a version of SuperBetter based on cognitive-behavioral therapy and positive psychotherapy (“CBT/PPT SuperBetter”);
- A group that used a version of SuperBetter based on simple, easy, feel-good activities (“Being Awesome SuperBetter”);
- A group that waited for their turn to use SuperBetter (“Waiting List”).



Waiting List
Control Group

CBT/PPT
SuperBetter

Being Awesome
SuperBetter

PARTICIPANTS

Participants were recruited from two websites:

- Authentic Happiness (www.authentichappiness.upenn.edu), which is affiliated with the University of Pennsylvania Positive Psychology Center
- Craigslist (www.craigslist.org), an online community bulletin board

Participant characteristics: The average age was 40. 72% of participants were female, and 82% were White. 39% were currently using therapy or coaching, and 22% had tried these in the past. 42% were currently using antidepressant medication, and 64% had tried it in the past.

At pre-test participants were depressed, with average scores of 32.3 (waiting list) and 34.1 (SuperBetter group) on a scale ranging from 0-60. (Higher scores indicate more/worse symptoms. Scores of 16+ suggest depression.)

Method

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MEASURES

Reliable, validated self-report measures were used in the study. This means that participants told us about their depression and well-being; They were *not* assessed or diagnosed by a mental health professional for this study.

DEPRESSION was measured with the Center for Epidemiologic Studies Depression scale (CES-D), a self-report measure. This was the primary outcome.

ANXIETY was measured with the Generalized Anxiety Disorder - 7 scale (GAD-7).

LIFE SATISFACTION was measured with the Satisfaction with Life Scale (SWLS).

SELF-EFFICACY was measured with the New General Self-Efficacy Scale (NGSE).

SOCIAL SUPPORT was measured with the Multidimensional Scale of Perceived Social Support (MSPSS).

PROCEDURE

Potential participants completed a screening questionnaire, and those who were eligible enrolled in the study and completed a pre-test (including all the measures listed above). Then, they were randomly assigned to one of the three groups: CBT/PPT SuperBetter, Being Awesome SuperBetter, or the Waiting List control group. The SuperBetter groups were asked to use the app daily for one month. Every two weeks, all participants were asked to complete a survey about their depression and well-being.

When all data had been collected, the data were analyzed using hierarchical linear modeling (HLM) with the statistical program SAS. HLM is a good way to analyze data when some participants drop out and so data is missing (Nich & Carroll, 1997).



Results

What was discovered?

DEPRESSION

The most important question in the study was this: Do SuperBetter players become less depressed in one month, compared to people on a waiting list?

POST-TEST ANALYSES

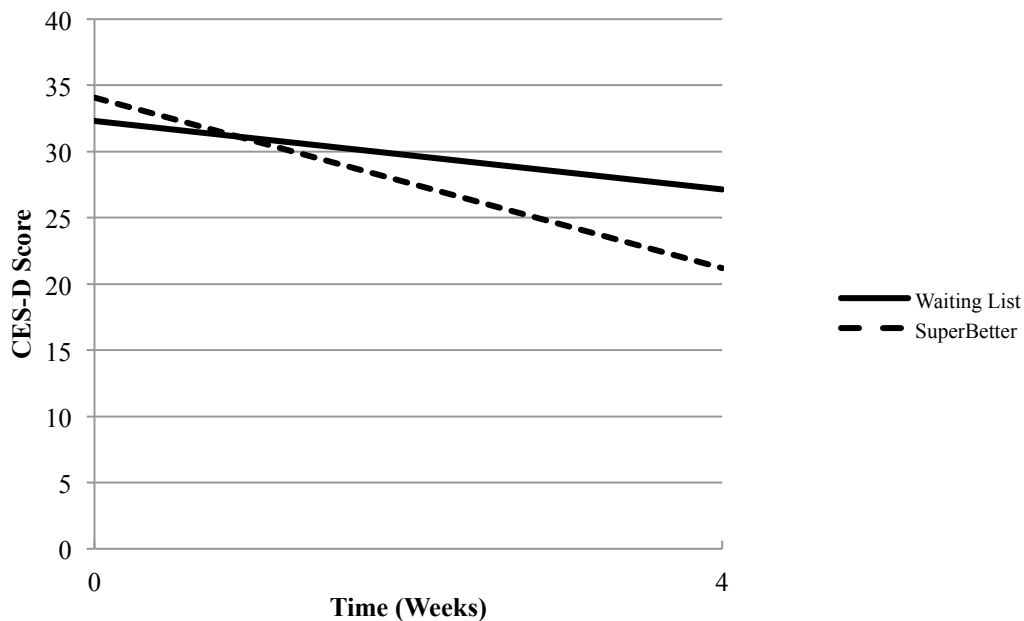
At the 1-month post-test, SB players' depression scores decreased by **12.9 points**. In comparison, waiting list participants' scores only decreased by **5.1 points**.

How big is this change? Do 12.9 points on a depression scale matter? This change is equivalent to the following: After one month, a SB player reports that **6 symptoms** that used to bother her 3-4 days per week are no longer a problem—while a waiting list participant reports that only about **2.5 symptoms** have improved that much.

FOLLOW-UP ANALYSES

By follow-up (six weeks pre-test), SB players' scores were **17 points** lower than at pre-test (compared to a **6 point** decrease for waiting list participants). This is equivalent to eliminating about **8.5 symptoms** that used to bother a SB player 3-4 days per week (compared to eliminating about **3 symptoms** for waiting list participants).

Change in Depression Symptoms by **Post-Test (1 month)**



Results

Continued

SECONDARY OUTCOMES

ANXIETY

At the one-month post-test, SB players' anxiety scores decreased by **3.9 points**. Waiting list participants' anxiety scores only decreased by **1.1 points**.

LIFE SATISFACTION

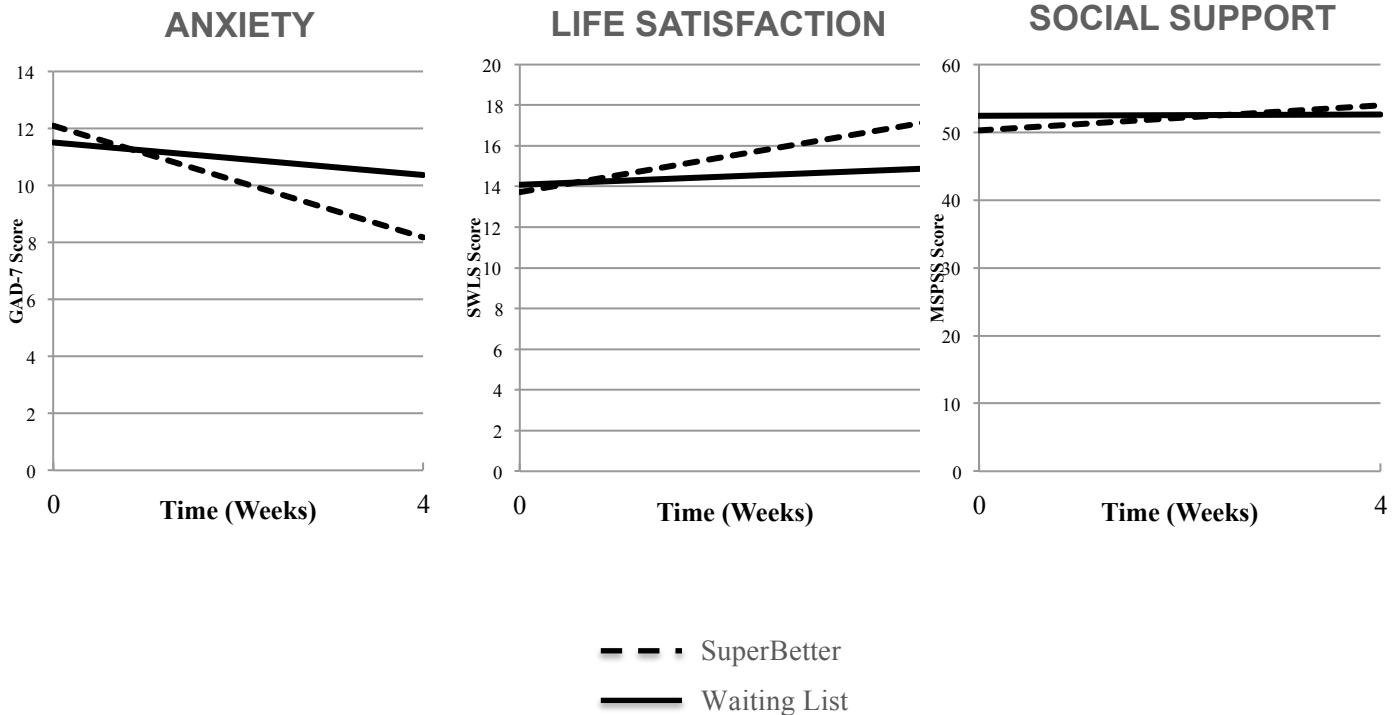
At the one-month post-test, SB players' life satisfaction increased by **3.6 points**. Waiting list participants' life satisfaction only increased by **0.8 points**.

SOCIAL SUPPORT

At the one-month post-test, SB players' social support increased by **3.7 points**. Waiting list participants' social support only increased by **0.4 points**. However, the difference did not reach statistical significance ($p = .10$).

SELF-EFFICACY

SuperBetter players tended to show larger increases in self-efficacy compared to the waiting list, but the statistical estimates were not reliable.



Results

Continued

2 VERSIONS OF SUPERBETTER

Which version of SuperBetter worked best? The hypothesis was that the CBT/PPT version of SuperBetter would work best, because it uses strategies from effective therapies (cognitive behavioral therapy and positive psychotherapy).

CBT/PPT SUPERBETTER (VS. WAITING LIST)

At the one-month post-test, participants using CBT/PPT SuperBetter were slightly better off than waiting list participants: Their depression scores fell by **9.3 points** compared to **5.0 points**, but the difference was not statistically significant ($p = .15$).

BEING AWESOME SUPERBETTER (VS. WAITING LIST)

At the one-month post-test, participants using Being Awesome SuperBetter were significantly better off than waiting list participants: Their depression scores fell by **17.0 points** compared to **5.0 points** ($p < .0001$).

COMPARISON OF 2 VERSIONS OF SUPERBETTER

Overall, the Being Awesome version of SuperBetter performed better than the CBT/PPT version of SuperBetter, as seen in the graph below. There are several possible explanations. One is that it may be hard to master CBT skills without more guidance. Another is that not all the CBT/PPT participants downloaded/used all the content they were offered, so they did not receive their full “dose” of SuperBetter. More research is needed to understand what specific kinds of SB content work well.

