

**[HED]:** A Smartphone Will See You Now

**[DEK]:** AI-based apps and chatbots offer a modern twist to mental health counseling.

**[HED]:** The Future of Therapy Could be Just a Text Away

**[DEK]:** Smartphone apps and chat bots provide counseling when it's needed most.

**[HED]:** Could On-Demand Therapy Help Millions with Mental Health Needs?

**[DEK]:** Smartphone apps and chat bots provide counseling when it's needed most.

**[HED]:** How Tech Might Help Millions to Live Happier Lives

**[DEK]:** AI-enabled, a mobile device could soon lend a therapeutic ear.

**[HED]:** The Therapist in Your Pocket

**[DEK]:** AI-based apps and chatbots offer a modern twist to mental health counseling.

**[HED]:** Can Texts Help Improve Lives?

**[DEK]:** AI-enabled, a mobile device could soon lend a therapeutic ear.

By Tam Harbert

"I am depressed," said a tearful young woman.

"I'm so sorry you feel that way," was the compassionate response. "Please know that you are not alone."

Although it sounds like a heartfelt conversation in a therapist's office, such an exchange could become common between people and artificial intelligence-based apps and platforms. In fact, that small sympathetic interchange is what Amazon's smart personal assistant Alexa provides when someone is depressed, said an Amazon spokesperson.

As healthcare costs rise, mental health professionals remain in short supply, and people are intimately comfortable with tech, several companies are crafting new ways to provide mental health care at a person's fingertips.

While these apps don't replace the critical human touch that's essential during a personal crisis, AI and machine learning can enable mental health professionals to reach more people, and ensure consistent follow-up.

San Francisco-based startup [X2AI](#) is one example. Its founder and CEO, Michiel Rauws, drew from his own experience. "I had learned the psychological techniques and innovations and realized that I might help others by encapsulating them in a product," he said.

As a teenager Rauws was diagnosed with depression and worked with a therapist. He realized that much of cognitive behavioral therapy is about coaching people to reframe how they think of themselves and their lives.

At 27, Rauws is a millennial himself, so he knows that his generation often feels more comfortable chatting about sensitive issues via text rather than in person at a therapist's office. So, he and his co-founder developed Tess, an AI chatbot that delivers personalized psychotherapy and mental health coaching.

Available through smartphone apps, web browsers, and social media channels, Tess is there whenever and wherever a patient needs it. Its programming recognizes signals that indicate an acute crisis, such as suicidal ideation, and alerts a human therapist when emergency intervention is essential.

There are several companies developing mental health-related apps. The Woebot, from [Woebot Labs](#), is a mental-health coach available to anyone who needs help dealing with anxiety or depression. Sign on through Facebook Messenger and Woebot will explain how it uses cognitive behavior therapy (CBT) in its responses.

Lest a person get too Freudian, the Woebot site notes that "CBT is based on the idea that it's not events themselves that affect us, it's how we think about those events, and how we think is often revealed in what we say."

A Woebot patient simply signs up using their existing Facebook account. The conversation is ongoing with Woebot in the Messenger chat bot, so a visitor can leave the discussion and go back to it later.

This is just the beginning of a new era of tech-enabled mental health care. Machine learning has become so sophisticated that it can read between the lines of conversations and look for warning signs.

IBM researchers said they've used cognitive systems and machine learning to analyze written transcripts and audio recordings from psychiatric interviews to identify patterns that can indicate, even predict, mental illness. "It takes only 300 words to help clinicians predict the probability of psychosis," according to its [website](#).

These technologies could meet a growing need. Rates of depression and anxiety among young people are rising. A survey conducted by the American College Health Association last year found that 20 percent of college students have been diagnosed with depression at some point in their lives, up from 10 percent in 2000. Universities encourage students to seek help, but the social stigma still associated with mental illness can keep them away.

At the same time, health clinics may have a hard time finding enough qualified staff. [The U.S. Department of Health and Human Services estimates](#) that by 2025 the need for psychiatrists could outstrip supply by as much as 25 percent.

AI-based therapy may also help address the shortage of mental health services in rural areas where patients must drive long distances to see a therapist face-to-face, said Gloria Zaionz, tech guru at the [Innovation Learning Network](#), a think tank in Silicon Valley that studies how technology can improve healthcare. More than 106 million

people live in areas that are federally designated as having a shortage of mental-health-care professionals, [according to the Kaiser Family Foundation](#).

Companies are careful to note that such products are not intended to replace in-person treatment, but rather to extend the reach of mental-health care. They do this by providing increased opportunities for patients to check in between visits and receive more frequent and consistent follow-up care.

In a pilot project in Australia, for example, University of Melbourne researchers are testing an online social network called [MOST](#) (moderated online social therapy) to provide ongoing support to young people after they've received in-patient treatment for psychosis at a regional mental healthcare center.

So far, the social network has been moderated by five human therapists for 80 users, but the project may incorporate AI-enabled capabilities in the future, said Simon D'Alfonso, research fellow in the School of Computing and Information Systems at the university.

"But if you have tens of thousands of users, that intense level of human moderation is less feasible," he said. "Human moderators have to sleep, so AI could help there."

"Our aim is not to get rid of traditional services, but rather to act as an adjunct," said D'Alfonso.

Data on the effectiveness of AI-based therapy is limited, but early results look encouraging. A randomized controlled trial of Tess across several U.S. universities showed a decrease in standard depression scale and anxiety scale scores, said Rauws. A [pilot study](#) of Woebot also reported reduced levels of depression and anxiety.

If AI-based on-demand therapy proves effective, the next step may be to combine it with physical health data from wearable devices, which could make it more proactive. A rapid rise of heartbeat and blood pressure sensed by a FitBit, for example, could be a sign of anxiety. A person's smartphone then might place a call or send a text just to check and see if she's OK.

And unlike the usual response to a parent's query, "Are you OK?", a young person just might answer a chat bot honestly and specifically.

"There's something about the screen that makes people feel a little bit more anonymous," said Zaionz, "so they open up more."