

AI could help patients with chronic pain avoid opioids

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Cognitive behavioral therapy is an effective alternative to opioid painkillers for managing chronic pain. But getting patients to complete

those programs is challenging, especially because psychotherapy often requires multiple sessions and mental health specialists are scarce.

A new study in *JAMA Internal Medicine* suggests that pain CBT supported by [artificial intelligence](#) renders the same results as guideline-recommended programs delivered by therapists, while requiring substantially less clinician time, making this therapy more accessible.

"Chronic pain is incredibly common: [back pain](#), osteoarthritis, migraine headaches and more. Because of pain, people miss work, develop depression, some people drink more alcohol than is healthy, and [chronic pain](#) is one of the main drivers of the opioid epidemic," said John Piette, a professor at the University of Michigan's School of Public Health and senior research scientist at the Veterans Administration.

"We're very excited about the results of this study, because we were able to demonstrate that we can achieve pain outcomes that are at least as good as standard [cognitive behavioral therapy](#) programs, and maybe even better. And we did that with less than half the therapist time as guideline-recommended approaches."

Traditionally, CBT is delivered by a therapist in 6 to 12 weekly in-person sessions that target patients' behaviors, help them cope mentally and assist them in regaining functioning.

"Unfortunately, many people with pain don't have access to these programs, and multiple weekly sessions is a deal breaker for people who have competing demands like jobs and family responsibilities," Piette said.

As a consequence, some patients look to medications to treat their symptoms or simply drop out of care before achieving benefit, he said.

Piette and colleagues recruited 278 patients with [chronic back pain](#) and randomized them into two groups. One group received standard CBT through ten 45-minute telephone sessions with a therapist. The other group received the AI-supported therapy, in which they reported their symptoms via brief, daily automated calls. Based on how they were doing, the AI-supported program recommended a 45-minute or 15-minute therapist session or a fully automated session covering similar content but without the need for a therapist to be present.

At three months, patients' pain intensity and pain interference were just as good with the AI-supported program, and at six months, substantially more patients in the AI-supported group had clinically important improvements in their outcomes, Piette said.

Eighty-two percent of patients in the AI-CBT group completed all 10 weeks of treatment, compared to 57% of patients who were offered 10 weeks of telephone counseling by a therapist.

"Despite receiving more weeks of treatment, the AI-supported program used less than half the therapist time, meaning that we could double the number of patients who can be treated with the same number of clinicians," Piette said. "This finding could have a dramatic impact on how we think about delivering psychotherapies for people with [pain](#)."

Piette said that similar CBT approaches are used for other [common problems](#) such as depression, anxiety and post-traumatic stress. This approach could make those services much more accessible as well, despite a shortage of therapists, he said.

"Artificial intelligence can help figure out how to provide each person as much attention as they need, while ensuring that we're not expending scarce resources with patients who don't benefit from them," he said.

"Not everyone needs the same amount of [therapist](#) time; some need

more while other patients can achieve benefits with a lighter touch. AI can help us target those services where they can help the most."

More information: John D. Piette et al, Patient-Centered Pain Care Using Artificial Intelligence and Mobile Health Tools, *JAMA Internal Medicine* (2022). [DOI: 10.1001/jamainternmed.2022.3178](https://doi.org/10.1001/jamainternmed.2022.3178)

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