

# 'Alexa, I'm in pain': Smart assistants could help combat opioid crisis

April 23 2019, by Jessica Hallman

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For patients suffering with chronic pain, relief could soon be found as close as their nearest smart assistant.

Researchers at Penn State are developing a way to deliver on-demand, guided mindfulness practices via Amazon Alexa to patients experiencing [chronic pain](#). Through their method, a smart assistant will provide Mindfulness-Based Stress Reduction (MBSR) practices to individuals in their homes. MBSR is a non-addictive, long-term pain-management alternative to opioid pain medication.

"In particular with [opioid addiction](#), there has been quite a bit of progress in coming up with methods that are non-addictive, and mindfulness is one of them," said Saeed Abdullah, assistant professor of information sciences and technology and the primary investigator on the project.

While MBSR techniques have proven effective for chronic pain management and improving a patient's quality of life, long-term adherence to these interventions can be a challenge for many individuals who experience chronic pain. The proposed Alexa addition incorporates methods for patients to practice regularly at home, which could increase compliance treatment rates and impact outcomes for patients.

"Long-term engagement with MBSR practices is essential for effective pain management and subsequently reducing the risk of opioid dependence," explained Abdullah.

By utilizing a smart assistant like Amazon Alexa, through which a patient can have a direct conversation with a virtual coach, Abdullah and his research team believe that user engagement will be sustained over a long period of time. The researchers hope that increased use of MBSR practices could reduce the use of opioid medication to address chronic pain.

Abdullah has partnered with Stephanie Lanza, professor in the Penn State Department of Biobehavioral Health, director of the Edna Bennett

Pierce Prevention Research Center, and interim director of the Penn State Consortium to Combat Substance Abuse (CCSA); and Sebrina Doyle, assistant research professor in the College of Health and Human Development and the Edna Bennett Pierce Prevention Research Center. The two were seeking a new way to offer patients support in using MBSR methods, according to Doyle.

"There are many MBSR applications for smart phones, but the one challenge, especially for people who are in chronic pain, is even getting to their smartphone device or finding another mechanism if they want a guided practice," she said. "With Alexa, you don't have to get up from your seat to access the practices."

One guided [practice](#) commonly used in MBSR is a body scan. Doyle explained that during a body scan, a patient systemically goes through the different parts of the body and takes note of what they are feeling in those areas.

"There are lots of things that happen in our bodies all the time, and the body scan helps us to get familiar with that," she said. "It's paying focused attention to individual areas of your body, a little at a time."

The team plans to run two phases of their study first to assess the quality of the dynamic content delivery, then to measure participants' continued engagement with Alexa as they access MBSR practices. In addition, users will track their pain-related cognitions and alcohol, tobacco, marijuana, opioid and other drug use through a daily diary survey.

Doyle, who also serves as the assistant director of outreach for CCSA, said that this project helps to advance the consortium's mission. The CCSA is comprised of a number of researchers, educators and practitioners from Penn State campuses who are developing and implementing programs, policies and practices aimed at preventing and

treating addiction in the state.

According to the CCSA, Pennsylvania has consistently been among the top 10 states in the country in overdose deaths, with 5,456 lives lost in 2017.

"From my perspective, this project is exactly what the CCSA is meant to do," said Doyle. "We are from completely different departments and are learning from each other. We're paving the way in serving as an example for other people and other potential collaborations."

"I want to solve problems that matter," said Abdullah. "I want to make a better world as well as try to help people who need help."

"This particular project really falls into what I want to do and the sort of contributions that I want to make as an IST researcher," he concluded. "It's about solving difficult problems using technology, and solving problems that affect a lot of people."

The project is funded by an opioid seed grant from CCSA.

Provided by Pennsylvania State University

Citation: 'Alexa, I'm in pain': Smart assistants could help combat opioid crisis (2019, April 23) retrieved 4 May 2024 from

<https://medicalxpress.com/news/2019-04-alexa-im-pain-smart-combat.html>

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