

## News and Perspectives

# Potential of Digital Tools for Chronic Pain Management

Vanessa Nirode, JMIR Correspondent

## Abstract

Chronic pain is notoriously complex to manage and treat. In this *News and Perspectives* article, JMIR Correspondent Vanessa Nirode reports on several digital innovations that may help to bridge existing care gaps.

### Key Takeaways:

- Digital pain management tools can help people with chronic pain as well as provide health care providers with a better understanding of what these patients feel and potentially need.
- Tracking apps provide context and data for long-term symptoms.
- Virtual reality, adaptive neurostimulation, and adaptive medical AI advances provide promise for the future.

[A recent review](#) suggests that over a quarter of adults experience chronic pain. Many struggle to find therapies and managements that provide relief, partially because pain can have a [significant neurological component](#), which researchers are still learning more about.

Eric Anderson, MD, neurologist and chief medical officer at [Lin Health](#), has developed care models in the digital/virtual space that address the biological, psychological, and social drivers of chronic pain and that focus specifically on primary pain or [neuroplastic pain](#).

“All pain signaling comes from the brain,” said Anderson, “When we touch something, mechanical receptors tell us there’s pressure, temperature, something noxious. Our brain processes that and determines what to do with it. In primary pain, this becomes somewhat maladaptive. The brain becomes overprotective, registering things that are no longer pain or that *could* be pain as pain.”

Our brains may also send preemptive pain signaling, anticipating an action that has caused pain in the past. [Neuroimaging supports this](#), showing that acute pain lights up the somatosensory cortex while chronic pain registers in the limbic region, morphing into learned memory.

[Lin Health](#), a virtual program, downloadable app, and medical group with psychiatrists, pain specialists, and behavioral health care managers, works within this concept of pain.

“We use the app with coaches and a guiding medical team to help people understand and validate what they’re going through,” Anderson explained.

## Digital Tracking Tools

“We have a very expensive healthcare system that is very good at keeping you alive. After that, we’re not as good,” said Rebecca Abraham, RN, the founder of [Plesio Health](#), a company that builds technology products for pain symptom

management. “Everybody passes chronic pain treatment to somebody else.”

Abraham hopes to change how chronic pain and frequently co-occurring sleep issues, anxiety, and depression are treated. Plesio [focuses on the use of cannabis, hemp, and other substances and supplements](#) to manage symptoms.

Using algorithms based on [nursing theory](#) and traditional medicine, Plesio Health has built tools around product guides and risk management: a care plan generator to inform online buyers, a pharmaceutical drug interaction checker, and a dosing tracker to input symptoms, use, and results. This dosing tracker provides a way to quantify results, something that didn’t previously exist.

“We made it more technical and applied a quantifiable number to it. This allows patients to tell us how they feel, which helps us help them manage their pain,” said Abraham.

## Real-World Results

Nicole Notar, founder and CEO of [Vindicara](#), has dealt with chronic pain associated with [endometriosis](#) for 15 years. Symptom-tracking apps have helped her more than she expected.

“When you’re in pain often, everything kind of blends together, so logging things made me notice patterns I wouldn’t have picked up otherwise,” she explained.

While many people think of endometriosis as a “menstrual disease,” [endometrial tissue has been found on every organ in the body](#). In Notar’s case, this includes the bowel, colon, rectum, bladder, abdomen, and uterus. At age 16, she was missing work and school and frequenting emergency rooms. Doctors told her parents there was nothing wrong with her, suggesting she just didn’t want to go to school. They insisted the pain was in her head; she was too young to have endometriosis and, even if she did, there was nothing to do about it.

In Notar's chart, doctors would write, "takes eight Motrin a day, still in debilitating pain."

"That's data," Notar said. "It's not an [ICD-10](#) code [*International Statistical Classification of Diseases and Related Health Problems, 10th Revision*], but it is data. And it was constantly ignored."

This is where Notar's plugin comes in. It flags that data and assigns a risk score with an explanation. Targeting a launch of July 2026, it will integrate into electronic health record (EHR) systems including Epic, MyChart, and Athena Health. Notar's hope is that it will prevent others from going through what she did.

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*"Digital tools and virtual programs should be bolted on to a service that extends the reach of an existing medical program. Augment, not replace."*

Eric Anderson, MD

Notar has used a variety of apps to manage her chronic pain, including [Natural Cycles](#), a regulated medical device often used for pregnancy planning. Paired with the included thermometer or other compatible wearable, it tracks body temperature.

"This creates a whole new form of tracking data: flare day patterns; gastro flares or bladder tightness, which helps me prep for gynecologist visits. I have data that shows eleven flares in the last eight weeks."

Through her foundation, [Endo Excision for All](#), people reach out from all over. Generally, those in larger cities use tracking apps, while many from smaller towns may not have even heard about them.

"Maybe they don't have an Instagram," explained Notar, "They don't see all the ads. How does that whole community prepare for their appointments? They don't. We need a tool for people to take their notes even if providers don't believe them."

**Keywords:** chronic pain; pain management; telemedicine; artificial intelligence; symptom assessment; wearable electronic devices; virtual reality; biomedical technology

"Digital tools and virtual programs should be bolted on to a service that extends the reach of an existing medical program," said Anderson. "Augment, not replace."

While a digital calculator for certain algorithmic scales makes a lot of sense, these apps can be taken out of context. To be more useful and produce outcomes, they must be put into the appropriate clinical context. For instance, you can measure your blood pressure, but you can't put it in the context of your entire person, your health, and what it means with only one stand-alone tool.

## Beyond Tracking Apps

Beyond tracking, digital innovations for pain relief and treatment continue to be developed.

In the chronic pain treatment space, [neuromodulation devices](#) can "rewire pain signaling." These therapies, which include [spinal cord and deep brain stimulation](#), work via wireless implants that can respond in real time to reduce pain. Such approaches could be further coupled with adaptive [AI that could learn patient patterns](#) and help provide relief from pain and [even prevent flare-ups before they manifest](#).

In 2022, the US Food and Drug Administration approved virtual reality systems as a chronic pain management tool. [A crossover study](#) published in April 2025 showed that telehealth virtual reality interventions can reduce chronic pain.

Dimitri Souza, MD, a physician at [Western Reserve Hospital Center for Pain Medicine](#), described watching a patient with sickle cell disease, considered among the [most painful conditions](#), using a virtual reality system.

"He was in a different world, flying between the hills. He was so excited and happy and there was no sense of pain on his face. It's a really powerful tool. And it is available. Like the endorphins and pain protection systems we all have. They're there [for us to use]. We just need to learn how."

Anyone who suffers from chronic pain knows that management and relief never come from a singular place or in a straight line. It is as complicated and unique as the pain itself, requiring tools that allow for nuanced and individualized tracking, monitoring, feedback, and treatment. As AI and other digital advances become more widespread, a future that eases the effects of chronic pain becomes possible and feasible.

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