

News and Perspectives

The Need for Continued Investment in Digital Pain Assessment

Vanessa Nirode, JMIR Correspondent

Key Takeaways

- Pain is inherently subjective, and traditional questionnaires and pain scales tend to be confusing and frustrating for patients, influenced by mood, bias, desires, and underlying social and psychological factors.
- Digital assessment tools can help capture a more complete picture of how pain affects a person's life, allowing for better pain management plans.

Over 20% of the world's population lives with chronic pain [1]. Each person has a unique experience and relationship with their pain that requires individualized treatment within a biopsychosocial approach—something that can be hindered by relying too heavily on traditional pain assessment scales.

Standard pain assessment scales typically include pen-and-paper or online questionnaires assessing pain severity and intensity (commonly on a 0-to-10 scale), how pain affects function, and, often, measurements of depression and catastrophizing [2]. The problem is that these scales aren't so standard; individual biases, perceptions, desires, and underlying social and psychological factors influence interpretation of question meanings [3].

These measures also tend to be confusing or frustrating for patients [4], whose definitions of “pain” can diverge from those of their doctors. A small 2025 pilot study in the *Journal of Pain Research* found that medical professionals focused on the body-mind definition of “pain,” while laypersons broadened their descriptions to include “suffering” or the sense that pain damages or alters personality [5]. As a person with osteoarthritis was quoted as saying in another 2025 study [6], “It's not just a knee, it's a whole life.”

Pain Assessment Questionnaires

After dealing with chronic pain for over 40 years, US-based Catherine Hicks has stopped completing pain assessment forms.

“They never give the full picture of what's going on,” Hicks explained. “I think when or if a doctor looks at a form, their job is to push you in and out and not charge the health insurance companies too much money. That sounds jaded, but that's how I often feel.”

While Erin Adams, a Canada-based patient with chronic pain, understands the purpose of such forms, they can “feel like you're on constant repeat.” After breaking her foot 11 years ago, Adams' complex regional pain syndrome (long-lasting pain and inflammation [7]) diagnosis took “13 months and 1,000,001 appointments with different specialists.”

It's not the questionnaires themselves, she explained, nor that she finds them confusing. In fact, after filling out many, Adams can see the patterns of what they're looking for. “I'm sure they come in handy. But I draw hair onto my little stick man, and I put her in a nice dress and [the question] ‘Where does it hurt?’ I circle the whole thing.”

The biggest limitations to the 0-to-10 scale are the lack of a universal scale as well as patient overreporting and underreporting [3]. As Ashley Guttman, MD—senior physician at Serefin Health [8]—explained, they don't account for, say, a bad weather day or a patient not sleeping because of caregiving responsibilities. Certain biases or psychological stresses also potentially influence responses. Patients might, for instance, underreport their pain out of fear of judgment or being perceived as “drug-seeking” [9].

Recall bias also plays a role [10,11]. Remembering if the pain was throbbing or stabbing or if it was a “6” or “7” after the fact can be difficult. Some patients really want to portray their symptoms accurately, so they struggle with this, according to Guttman.

But we shouldn't discard these questionnaires altogether.

“They can establish baselines,” Guttman said. “They're good at quantifying severity and screening for other comorbidities like depression and they help monitor treatment responses.”

Working in the Current System

Assessments should provide the patient's perspective, according to Christina Le-Short, MD—medical director at Override [12] and physician at Palo Alto Medical Foundation.

Le-Short discusses the pain questionnaires with her patients, perhaps asking why they marked a particular score. “I love the phrase, ‘tell me more,’” she explained. “It's always, ‘tell me more, tell me more.’”

Le-Short said that she's seeing a shift from insurance companies toward incentivizing outcomes and patient well-being instead of just focusing on patient volume and high-paying procedures [13].

Within this shift and the growing commitment to biopsychosocial chronic pain treatments, digital advancements possess potential for making holistic patient assessment and, in turn, patient care easier.

Digital Advances

More data can help determine pain type and better inform treatment options, according to Dimitri Souza, MD—physician at Western Reserve Hospital Center for Pain Medicine [14].

Digital tools, such as tracking apps, ecological momentary assessments, wearables, adaptive (artificial intelligence [AI]) questionnaires, and virtual reality systems, could aid in more efficient and accurate assessment.

Override, for example, provides virtual care in conjunction with an app that includes journaling, tracking, and an educational library—tools that can “empower patients to better understand what’s going on in their bodies,” said Le-Short. The app sends data directly to patient charts, allowing doctors to reference specific, notable trends during visits.

“This teaches patients to be more cognizant of what is going on around them which can help when managing pain,” said Le-Short. These kinds of tracking apps, along with wearables, also mitigate recall bias, as patients can record what they feel as it happens.

An AI tool that records patients’ health calls and visits—Doctor Notes—generates AI summaries and stores those patient-doctor conversations [15]. “It acts as a scribe, taking notes for people,” said Hicks, who helped design the app. “I’ve been using it for about a year, and find it extremely helpful to give context and keep track of my multiple doctor’s appointments.”

Designed for those who cannot always verbalize what they’re feeling, PainChek [16,17] measures facial microexpressions to detect pain, alongside digital checklists. An *MIT Technology Review* article pointed out that while PainChek is useful, it still relies on subjective pain reports [18].

Keywords: chronic pain; pain management; pain measurement; artificial intelligence; wearable electronic devices; mobile applications; self-monitoring

Conflicts of Interest

None declared.

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Wearable and portable technologies can allow researchers to access psychophysiological pain indicators, such as electrical brain activity and skin response. In the future, they may also use voice and body gestures to measure intensity [19].

Need for Integration

Patients—not physicians—most often seek out digital tools and therapeutics [20], which means they are rarely well integrated into doctor-guided treatment plans.

“Right now,” said Souza, “there is [a] disconnect between the data and patient chart.”

Medical facilities must find ways to integrate what patients record (eg, in an app) into their electronic medical record. Of course, this is also the junction where privacy and security concerns come in.

Despite this, Souza sees integration as the future, postulating that health care system administrators will ultimately recognize the social and economic benefits of—and allocate more funding to—digital tools.

Getting to a Future

Hicks, who works in public health, says that, when it comes to technology, the health care industry lags about 10 years behind. While systemic change must come from the top, she believes that patients’ use of technology to compile data to advocate for themselves is a way forward and a catalyst to doctors pushing for technical integration and investment. And, as Adams pointed out, which doctor you give your pain assessment forms to determines their usefulness.

The keys are finding the “right” doctors and building on what already exists.

Using health questionnaires in conjunction with emerging digital assessment tools can lead to more holistic treatment options and a better understanding of how to help those with chronic pain get back to feeling like themselves, even if that self is an altered one.

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