

Mental health ills are rising. Do mood-tracking apps help?

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You can already track your steps, your sleep—why not track your mood? Apple's latest software updates for its iPhone, iPad, and Apple Watch will [now allow users to log and track their moods](#). They are far from the

first tech company to offer this, but with the rising concerns over mental health across the nation it raises the question of whether mood-tracking apps are effective.

Jukka-Pekka Onnela is an associate professor of biostatistics and co-director of the Master of Science in Health Data Science program in the Harvard T.H. Chan School of Public Health. He studies how data collected from [digital devices](#) can help us understand our social interactions, behavior, and moods. The Gazette spoke with Onnela to better understand how the mood tracking works. This interview has been edited for length and clarity.

GAZETTE: What do you think about Apple offering mood tracking on its devices?

Onnela: In general, I think it's a very positive development that a company like Apple is thinking about [mental health](#). When you have a big company like them stepping into this space, it serves an important signal that mental [health](#) really matters. From my impression, the app relies on self-reporting, and there are many companies that do this already. But the devil is always in the details; if Apple has found out a good way for people really adhere to the self-reports over the long term, that could be a game changer.

GAZETTE: What are some of the limitations of mood tracking?

Onnela: Most approaches to mental health have relied heavily on self-reporting, and one of the limitations of this approach is that it's very difficult to get people to do it over long periods of time. If it's a more acute setting, where you ask users to self-report daily for a week or a month, I think that's doable. But if we're thinking about a chronic

condition, which would require self-reporting for years and years, I don't think it's feasible, and the data will be spotty.

Also, certain types of serious mental illness are characterized by the fact that a person lacks insight into their own behavior or moods; so if we think about [serious mental illness](#)—like [bipolar disorder](#), schizophrenia, and so on—it may be of limited utility to ask people about their own behaviors because they don't have that awareness compared to somebody who has mild to moderate depression. And as a statistician, I must mention bias. You might have one day when you're feeling so good that you don't feel like doing a survey on psychological symptoms. But in contrast, it could also be that you feel so bad that you don't want to be thinking about these topics.

GAZETTE: Tracking one's mood seems like a first step. But what do users do with the information? Is the purpose of these apps simply to record data or provide actionable steps?

Onnela: Currently there are thousands of apps for tracking moods, broadly speaking. My sense is that there are two sets of things that can be done: We can measure, and we can manage. Measurement is important, if it can be done accurately, because we cannot manage what we cannot measure. For example, think of something like your weight. We have weight scales—most of us have them in our bathrooms. If we're going to have any intervention on weight, we need a way to assess if what we're doing is working or not.

My sense is that smartphones are really a game-changer when it comes to the measurement piece of mental health. Anecdotally, I'm aware of apps that provide tips for managing mental health; I'm also aware of some applications that give terrible tips. I would really stress the importance of

keeping these two things apart, the measurement component and the management component. But overall better measurement is going to be helpful both at the clinic and outside of the clinic.

GAZETTE: It sounds like as a user, it could be helpful to use Apple's mood tracking—or other apps—to measure what's going on in my life. But in terms of management, I should seek help elsewhere?

Onnela: Yes, seek clinical help. One aspect of this the measurement piece, which is sometimes overlooked, is that being able to see your own past [mood](#) could potentially act as an informational intervention. For example, imagine a person looking at their self-reported data; they could be shocked to see that for the last two months, consistently, they've reported anxiety, depression, and so forth. We have to be careful when we feed this information back to users.

GAZETTE: I was actually thinking about that. Let's say I'm tracking my mood and for two months, I find out that I'm unhappy 75% of the time, might that make me more unhappy to realize how unhappy I am?

Onnela: I think that's right. That could happen. Especially if the results are out of the norm. But of course, when those measurements are out of the norm, that's when they're potentially the most useful. But again, it just underlines the fact that one has to think very carefully how this information is fed back to the participant.

GAZETTE: Does this feel like encroachment from tech companies, to be entering these areas of mental

health and mood tracking? Where do you see that line between companies helping people and when they might be taking it too far?

Onnela: That's a tough question, and probably a contentious one. It's clear that there's an unmet need for mental health resources. We have millions of people in the U.S. who don't have health insurance, and millions more who are underinsured. I think it helps explain why we have so many smartphone applications that specifically target mental health and wellness.

But there's a difference between health and wellness; if we're thinking about wellness, that's a fairly unregulated space. If we're talking about health, then we do have regulations there, with the FDA playing a hugely important role. So, I'm sure clinicians are worried to some extent, and so am I. But it's also concerning that we have millions of people who are not getting the help that they need. I think it's important to continue to explore and innovate and experiment. But that has to be done with some guardrails in place, and if we had a perfectly functioning mental health system, I don't think there would be a need for these types of approaches.

GAZETTE: Do you think we can trust companies to use this data and technology ethically and responsibly?

Onnela: I think it depends on the company. There are some companies who seem to be very responsible about the way they use data. For example, they may only collect the data that's absolutely needed. They don't sell their data, and they don't sell your data to third parties. But there are also bad apples out there. I'm not sure this is any different from

any other field, but when we talk about health, the risks are probably more significant than in almost any other area. I think that calls for regulation and establishing best practices.

GAZETTE: Technology and mental health have a complicated relationship. So what are some of the limitations of using technology to help our mental and emotional well-being individually and collectively as a society? Or where do you see potential?

Onnela: I always think about the role of adherence. We may have the best drug, but if people don't take the drug, it's pointless. And with many of these new technologies, especially wearables and tracking, we know that most people will wear the device for three to four months, and then stop wearing it and it ends up in some drawer somewhere. Wearables cannot work on people who don't wear them.

I think the great potential of smartphones is the ubiquity of the device. When thinking about health inequities, if we can leverage devices that people already have, then we can potentially reduce those inequities. In contrast, if you have to buy a dedicated wearable, that's expensive. And the people who are most able to afford that are probably the people who are least likely to truly benefit.

The downside of this very technology is that there are studies showing the negative impact of spending too much time on your smartphone. We know that screen time, especially among adolescents, has been on the rise. People are practically glued to their devices, that cannot be a good thing. It's no panacea; the same technology that I think has the most potential for addressing mental health, if not used with caution, can also deteriorate your mental health. It's a balancing act.

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