COVID-19 Is Straining Mental Health—Could Technology Be the Answer?

Summer Allen

One of the most pernicious side effects of the COVID-19 pandemic is a steep rise in stress and mental health problems. According to a poll by the Kaiser Family Foundation, nearly half of American adults say that worry and stress about the pandemic is hurting their mental health [1]. There are plenty of factors feeding into this phenomenon. People are anxious about getting sick, grieving lost loved ones, and experiencing financial stress, parental stress, and loneliness. The pandemic places additional burdens on essential workers and people of color, both of whom are at greater risk of dying from the disease. COVID-19 itself has been linked to neurological problems as well as anxiety, depression, and sleep disorders [2].

Mental health services were already stretched thin before the pandemic in many places; now they're needed more than ever. But increased demand may also present new opportunities. The pandemic might be a "black swan" moment for mental health care—"an unforeseen event that changes everything," according to Heleen Riper, Ph.D., professor of eMental-Health at Vrije Universiteit Amsterdam [3].

One opportunity for improving access to mental health services during and after the pandemic is increased adoption of technological tools such as teletherapy, mHealth (mobile Health) apps, and online interventions. "A lot has changed since the pandemic started," says John Torous, M.D., director of the digital psychiatry division at Beth Israel Deaconess Medical Center. "I think the resistance has gone down in a matter of weeks to using these tools and interest has gone up."

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Rise in teletherapy

Due to stay at home orders, many therapists and other mental health providers have moved to teletherapy appointments conducted over the computer or phone. "We transferred to an entirely teletherapy clinic within two or three weeks when we had done no teletherapy whatsoever before that," says Jessica Schleider, Ph.D., assistant professor of clinical psychology at Stony Brook University (Figure 1). "What this has forced the field to do is figure out what's possible."

What's possible has included a loosening of licensure laws that normally restrict psychologists from seeing clients in other states—so providers could continue to care for college students who returned home—and an expansion of the types of technological platforms providers can use to administer teletherapy.

Despite reticence by many health care providers and insurers, evidence suggests that teletherapy can be quite effective. While a 2018 meta-analysis found that the so-called "working alliance"—the provider-patient relationship—may be inferior with videoconferencing compared to face-to-face sessions, psychotherapy offered via videoconferencing improved symptoms similarly to face-to-face therapy [4]. Teletherapy may also help people attend more therapy appointments. A study of providers of psychotherapy at a public hospital in Massachusetts found that the average number of missed

Figure 1. Jessica Schleider. (Photo courtesy of Jessica Schleider.)

therapy appointments dropped from 14.3% to 5.6% after the clinic transitioned to teletherapy due to the pandemic [5].

There are other ways that technology may improve access to mental health care, both for people already in established relationships with mental health providers and for those who are on waiting lists, uninsured, wary of seeking professional mental health help, or have less severe symptoms.

Is there an app for that?

There are hundreds, if not thousands, of smartphone apps that claim to improve mental health, but do they work? "We actually haven't seen that many examples of apps bringing really strong clinical evidence," says Torous. "We need the right kind of clinical evidence to show these are safe and effective tools, and I think that we're beginning to see an uptick in high quality studies coming out."

The vast majority of apps marketed as mental health apps have not been studied in randomized control trials, and a recent study found that many of these apps incorporate nonevidence based techniques such as coloring, fidget games, identification quotes, and violent "steam-release" games [6]. Users report that these apps offer some in-the-moment relief, but there is some evidence to suggest that the violent "steam-release" games may make people more stressed and reading quotes about other peoples' depression—a component of some apps marketed for depression—may exacerbate feelings of the depression.

But there *are* apps that likely do improve mental health. According to meta-analysis studies, apps that use versions of clinically validated tools like cognitive behavioral therapy, mood monitoring, and mindfulness can lead to small to moderate improvements in symptoms of depression and anxiety compared to inactive control conditions [7].

It goes without saying that in order for apps to help with mental health symptoms they must actually be used, but a study of the most popular mental health apps—those with more than 100,000 downloads—found that only 3.9% of users used the apps for more than 15 days [8]. "It's very hard for people to stick with them," says Torous. "The classic analogy being, yes, you can give people running shoes, it doesn't mean they can all run a marathon."

There are also questions about the extent to which commercially available mental health apps maintain users' privacy. "You may be telling an app that you're suicidal or you take these medications; you may have granted the app access to your GPS [Global Positioning System] to track your exercise; you may have just given all of that data up to a company that has no obligation to protect your data," says Torous. "If anything, that company's business model may be to market your data and sell it."

He offers the example of Headspace, which many people think of as a mental health app but which is called "a wellness product" in the app's terms and conditions. "The difference is, as a wellness product, they're not subject to any of these HIPAA [Health Insurance Portability and Accountability Act] or health care regulations around privacy, data security," says Torous.

A study by Touros, Kit Huckvale, and Mark Larsen of the Black Dog Institute found that many of the top-ranked apps for depression and smoking cessation did not follow their own privacy policies and sent user data to undisclosed places. Torous says the group was so concerned by these privacy violations that they presented the findings to the Federal Trade Commission [9].

Given these concerns, Torous helped create an app evaluation framework for the American Psychiatric Association to help patients and providers

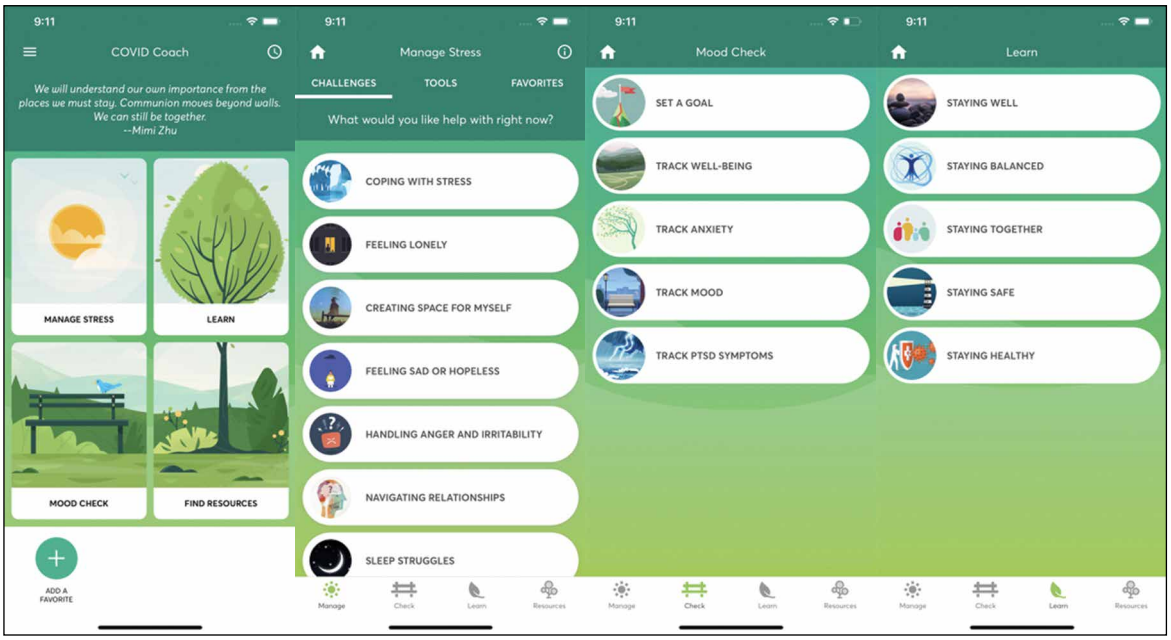

Figure 2. COVID Coach app. (Image courtesy of Beth Jaworski.)

choose which mental health apps to use [10]. "The goal wasn't to say one app is good or bad but to give people a kind of hierarchy or scaffold to do informed decision-making," says Torous.

COVID Coach

An example of an app that does not violate users' privacy or share user data, is completely free, is evidence-informed, and has the bonus of being especially designed for people dealing with the effects of the pandemic is COVID Coach (Figure 2). The COVID Coach app was created by the National Center for Posttraumatic Stress Disorder (PTSD), a part of the U.S. Department of Veterans Affairs (VA), to help people manage stress and take care of their mental health during the COVID-19 pandemic [11]. COVID Coach launched in April, after the National Center for PTSD started hearing from providers who wanted an easy way to administer psychological assessments and COVID-specific resources to offer their patients after the transition to telehealth. "Everyone put aside some of the other projects and pulled together to work on this and get it out quickly," says Beth Jaworski, Ph.D., health science specialist and lead of the COVID Coach project (Figure 3).

COVID Coach is based in part on PTSD Coach, another app created by the National Center for PTSD, which was found to significantly improve PTSD and depression symptoms in a randomized control trial [12]. Unlike PTSD Coach, COVID Coach is designed to be used by the general public, although Jaworksi cautions that it is not meant to replace professional mental health care.

COVID Coach's Manage Stress module includes evidence-based interactive tools like audio-guided exercises for deep breathing and muscle relaxation as well

Figure 3. Beth Jaworski. (Photo courtesy of Beth Jaworski.)

as tips and opportunities for positive distraction, such a link to the Monterey Bay Aquarium's live webcams. The Learn module contains educational material about how to stay physically and psychologically well during the pandemic and includes information about Staying Well, Staying Balanced, Staying Together, Staying Safe, and Staying Healthy. Jaworski says the topics in this section were informed by requests from VA providers as well as from what Jaworski and a colleague learned about disaster mental health while creating Sonoma Rises, an app for survivors of the Sonoma County wildfires. "We tried to have a bit more of a well-being or resilience focus rather than a disorder focus," says Jaworski who hopes that COVID Coach may reach a wider range of people than apps marketed specifically as mental health apps.

COVID Coach's Mood Check module allows users to set a goal and track their progress. It also includes industry standard assessments for anxiety, mood, and PTSD symptoms so that users can share their results with their mental health providers. The app creates graphs so users can visualize their progress over time. The Find Resources section connects users to a comprehensive selection of further support resources including crisis support, info about unemployment, and resources for basic needs like local food pantries.

There is clearly a need for COVID Coach. As of June 29, the app had almost 95,000 downloads across Apple's App store and Android's Google Play store, despite minimal advertising.

Project Y.E.S.

Other researchers are looking to the web as a place to expand mental health services. One example comes out of Schleider's Lab for Scalable Mental Health. Project Y.E.S. (Youth Empowerment Support) is a web-based intervention for improving mental health in teens, a population particularly in need of expanded mental health care options both before and during the pandemic [13] (Figure 4). "The existing needs have already been high for quite some time, and COVID has just exacerbated that to really astounding heights," says Schleider. "Even before the pandemic up to 80% of children and adolescents, just in the USA, with mental health needs could not access the care that they needed."

Before the pandemic, the care that adolescents did access was often insufficient—such as a one-off meeting with a school counselor or primary care

Figure 4. Project Y.E.S. welcome screen. (Image courtesy of Jessica Schleider.)

provider—or not evidence-based. Even among those who were fortunate enough to access evidence-based care, a very small minority actually finished treatment. Now, Schleider notes, "mental health needs are going through the roof" as adolescents struggle with the combination of social isolation and increased uncertainty and stress.

"COVID has essentially created a situation where we're at the perfect point for what I think is a generation of teenagers falling through the cracks of the mental health care system," says Schleider. "It's a really critical moment for the mental health services world to step up and be really creative in terms of dissemination services and support." Schleider's solution, Project Y.E.S, offers three 30-min single-session interventions (SSIs) that teens can do independently and anonymously. "We try to maximize the possibility that the one time kids access our site could benefit them in some way," says Schleider. "We don't expect anybody to come back."

One intervention teaches self-kindness; one teaches about growth mindset (the idea that people can change); and one teaches behavioral activation (engaging in positive and rewarding activities). These interventions are based on randomized control trials conducted by the Lab for Scalable Mental Health, which found SSIs reduced depression in high symptom youth [14].

There is one additional piece: "We know teens, especially nowadays, are super motivated by helping, not just by being helped, so there's an opportunity after they complete the program of their choice to give advice to other teenagers anonymously on how to cope with depression or anxiety," says Schleider (Figure 5). "The quality and number of advice

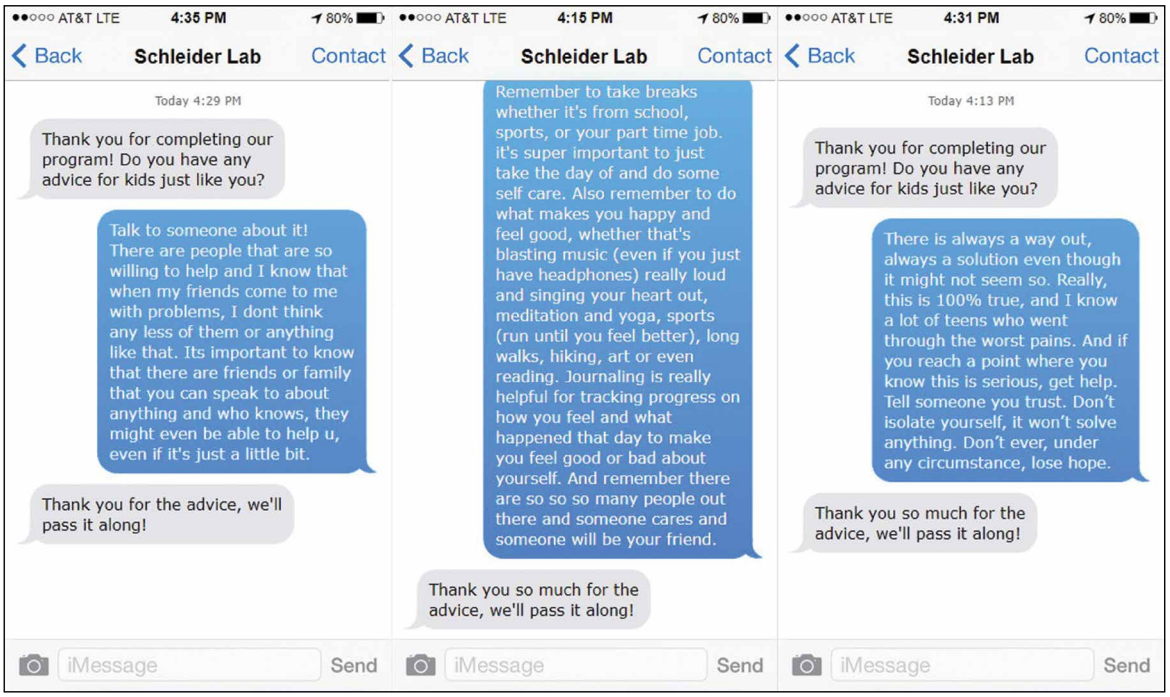

Figure 5. Advice offered by teens who completed Project Y.E.S. (Image courtesy of Jessica Schleider.)

statements we've received from teenagers has reinforced our team's belief that the opportunity to be prosocial, to help the community, is a really key part of potentially how our interventions might be helping folks."

With limited advertising on Reddit and Instagram, a few hundred teens have already completed Project Y.E.S, and the team has completed a study describing the outcomes for the first 190 teens who completed the interventions [15]. Interestingly, the early results suggest that even though the different SSIs teach different skills or strategies, they have similar results. "They all seem to boost a sense of hope and reduce hopelessness; they all seem to improve a sense of agency," she says.

Almost half of the teenagers who have completed Project Y.E.S. so far are sexual and gender minority youth, and over half are racial and ethnic minority youth. This is a promising sign, as typically teens from marginalized communities have lower access to mental health care.

Schleider says that Project Y.E.S. will likely change over time as teens communicate what does and doesn't work for them. Meanwhile, an incoming postdoc to the lab, Michael Mullarkey, is beginning a project to see if an SSI can help adults manage their anxiety during the pandemic.

According to Schleider, the pandemic is forcing the mental health field to consider novel ways to improve access to mental care."I think COVID has helped the field move forward much more quickly in a necessary direction than it would have otherwise, which is a small silver lining in the context of everything but definitely provides some hope," she says. ■

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Summer Allen *(summer.e.allen@gmail.com) received a Ph.D. in neuroscience from Brown University, Providence, RI, USA. She writes about neuroscience, psychology, and biotechnology.*