

Internet-based therapy may help depression in people with multiple sclerosis

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Major depressive disorder affects up to 50% of all individuals with multiple sclerosis (MS) at some point during their lifetime and can lead to lower quality of life, greater disease progression and higher mortality.

Patients enrolled in a phase 3 trial of an internet-delivered cognitive behavioral therapy program modified specifically for MS showed a large drop in depressive symptoms compared to a control group. The online program may offer an effective and easily accessible way to manage depression and lead to better quality of life for persons with MS, according to an international team of researchers.

The team published their findings in the journal [The Lancet Digital Health](#).

Multiple sclerosis is a neurological disease caused by the immune system attacking the brain, nerves and spinal cord. The disabling disease affects more than 2.8 million people globally, with greater occurrence in areas farther from the equator and first onset of the disease usually appearing in patients between the ages of 20 and 40.

"Depression is associated with cognitive impairments in individuals with MS," said Peter Arnett, professor of psychology at Penn State and co-principal investigator of the study. "Patients may have issues encoding new memories or trouble with concentration and information processing. These impairments can negatively impact relationships with partners, friends and coworkers and make it more likely that the individual quits their job or cuts their working hours prematurely."

Patients with [depression](#) also are less likely to take their MS medications, which may contribute to worsening disease progression over time, Arnett added. Previous studies have shown that talk therapies, such as cognitive behavioral therapy, could help treat depression in people with MS.

Current literature on the topic suggests that in MS, cognitive-behavioral treatments have generally proven to be more effective than antidepressant treatments and may be preferable given that they are non-

invasive and do not require the patient to take additional medication. However, given the high demand for therapy, patients may have to wait months before they can see a therapist and may have trouble finding a professional who specializes in working with people with neurological disorders, Arnett said.

"At the very core of cognitive behavioral therapy, or CBT, is the notion that thoughts cause feelings, so the reason somebody may be depressed is that they have unrealistically negative thoughts about themselves, the world around them and the future," said Arnett, who is also an affiliate of the Huck Institutes of the Life Sciences at Penn State.

"An important goal of CBT is to help the individual challenge and change those thoughts so they're more realistic, adaptive and positive. My colleagues and I wanted to see if an online, self-paced therapy program could be a valuable treatment option for patients with MS."

The researchers modified an existing internet-delivered [cognitive behavioral therapy](#) (iCBT) program to address issues affecting individuals with MS. Participants enrolled in the iCBT program showed a significant decrease in depressive symptoms, with mean scores dropping approximately 8 to 9 points on an inventory that measures severity of depression, compared to an approximate 1-point drop for participants in a control group.

The researchers enrolled 279 participants diagnosed with MS and clinically significant depression at five locations across the United States and Germany. They used the Beck Depression Inventory-II (BDI-II) to take a baseline assessment of the participants' depressive symptoms at the start of the study and after 12 weeks. The inventory measures the severity of [depressive symptoms](#), with scores from 0-13 indicating minimal depression, 14-19 mild depression, 20-28 moderate depression and 29-63 severe depression.

After taking baseline depressive measurements, the researchers randomly assigned the participants to a standalone iCBT group, a guided iCBT group or a waitlist control group. The standalone and guided iCBT groups had access to the iCBT program, with the guided iCBT group receiving a weekly check-in email from a therapist. The waitlist control group was offered access to the online program after 6 months.

The 10-week iCBT program was divided into weekly modules that covered diverse themes—such as behavioral activation, mindfulness and acceptance, and expressive writing and forgiveness—designed to engage patients in activities that promoted more positive thinking and behaviors. For instance, instead of prompting a patient with MS, who might have mobility issues, to take a walk around their neighborhood, the program might ask them to invite a friend over to their house or use a rowing machine at the gym, Arnett said.

The researchers reassessed all patients after the iCBT groups completed the program. They found that the mean BDI-II score for the standalone iCBT group decreased from approximately 24 to 15 points, or from moderate to just above minimal depression levels. The mean score for the guided iCBT group decreased from approximately 25 to 17 points, while the [control group](#)'s mean score decreased from nearly 21 to 20 points.

"If I saw a patient go from a BDI-II score of 24 to 14 over a 10-week period, I wouldn't need any statistics to know that's a huge decrease," Arnett said. "To see this decrease in a whole group is remarkable."

The findings show that tailoring a CBT program specifically for MS and delivering it online can be an effective, accessible approach for treating depression in MS, Arnett said. Having the ability to treat depression immediately can help individuals with MS delay disease progression, improve [quality of life](#) and avoid future depressive episodes, he added.

The researchers are currently digging deeper into the data to see if they can identify patient profiles that could signal that an individual might respond positively to therapy treatments. The information could help doctors and [mental health professionals](#) identify better, personalized approaches for [patients](#).

In addition to Arnett, 29 researchers from universities and medical centers across the United States, Germany, England and Switzerland participated in the study.

More information: Stefan M Gold et al, Internet-delivered cognitive behavioural therapy programme to reduce depressive symptoms in patients with multiple sclerosis: a multicentre, randomised, controlled, phase 3 trial, *The Lancet Digital Health* (2023). [DOI: 10.1016/S2589-7500\(23\)00109-7](#)

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