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OCD trial yields negative result, but advances effective treatment interventions

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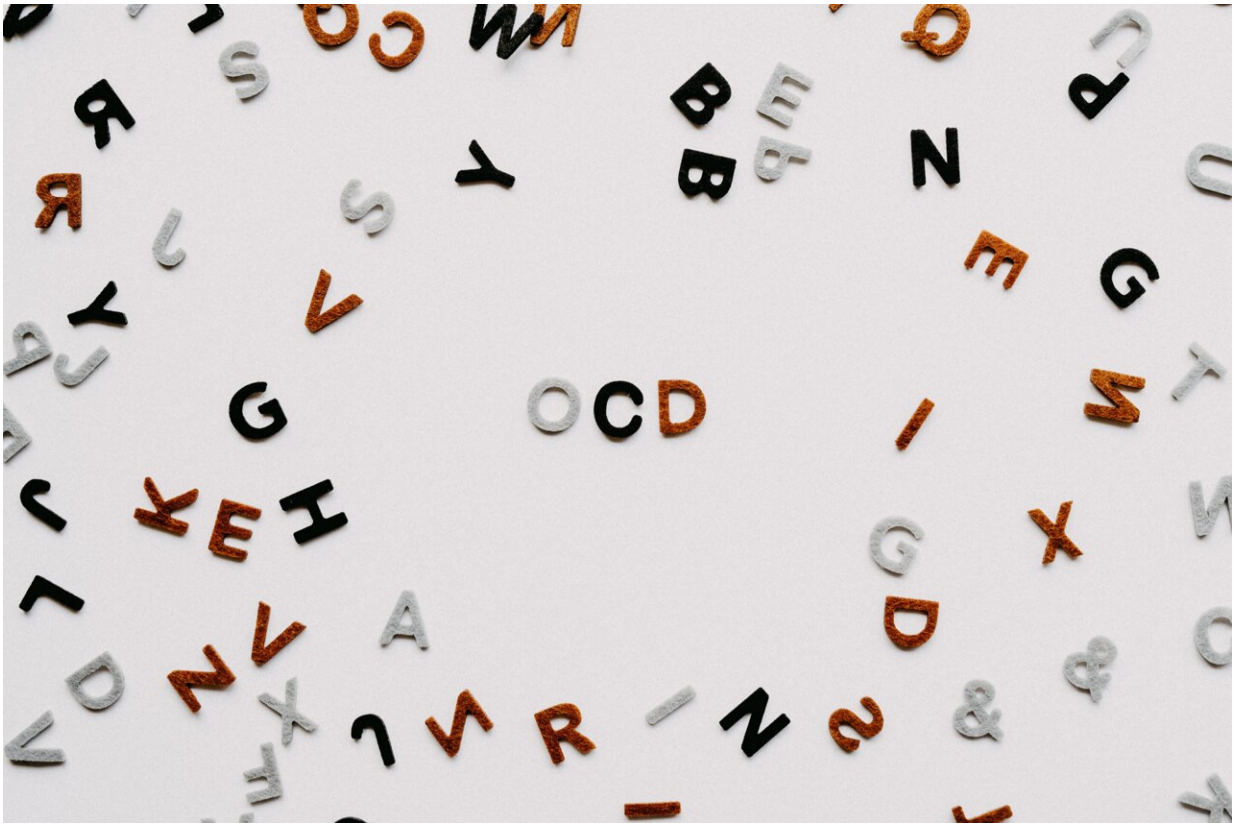

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An eight-year QIMR Berghofer clinical trial of a brain stimulation treatment for obsessive-compulsive disorder (OCD) has ended with a negative result, but researchers say the outcome helps progress the

development of effective interventions for the debilitating condition.

In results published in the journal *Nature Mental Health*, the trial of a specific form of transcranial magnetic stimulation (TMS) treatment found it did not benefit against symptoms of OCD.

However, Associate Professor Luca Cocchi said the clear findings will help illuminate a path in his team's ongoing search for new brain stimulation treatments.

"These are important findings that allow us to focus our attention on new and more effective ways of tackling OCD symptoms," said Cocchi, who led the trial.

"OCD is a horrible condition and current treatment options meaningfully work for only a portion of patients. There is a pressing need for us to find more targeted interventions to reduce symptoms and improve patient quality of life.

"We already have further research planned for potential new treatments, which wouldn't be possible without the lessons from this study. We're optimistic this new work will prove a critical step in finding new treatments for this debilitating disorder."

The TMS trial focused on whether the intervention could offer a non-invasive way of reducing OCD symptoms, in combination with existing treatments.

TMS delivers magnetic pulses to stimulate nerve cells and change brain activity. A specific form of TMS has been successful in the treatment of depression, but its efficacy against OCD was unclear ahead of the QIMR Berghofer trial.

"We hoped to use targeted TMS to stimulate and restore the activity of a key brain circuit that appears to be involved in OCD. There was strong reason to believe doing this could reduce symptoms and bring patients some relief," Cocchi said.

About half the participants received 20 sessions of active TMS designed to change brain network activity linked to OCD. The rest received a sham treatment, which mimicked TMS but did nothing to affect brain activity.

"Ultimately our results showed that our form of active TMS treatment did not perform any better than the placebo," Cocchi said.

"Interestingly, we did see a significant decrease in symptoms across the board, which may be due to the regular follow-up participants received during the trial. However, this decrease was no different between the two groups.

"This tells us the TMS didn't work within the specific parameters we used. But we're left with a very valuable set of findings that gives us clues on why the intervention didn't work, and how we should focus our research going forward."

For example, the strength of TMS stimulation was relatively low during the trial. Cocchi said the outcome suggested researchers may need to stimulate at a higher intensity to induce therapeutic changes in brain activity in the future.

"This may be achieved by increasing the threshold of TMS stimulation, or by using a different intervention or technique. Other treatment options using focused ultrasound and deep-brain stimulation may be more effective in creating the change needed."

He said the TMS findings were already informing further research planned into brain stimulation therapy.

About two percent of Australians are affected by OCD, which is characterized by distressing obsessive thoughts and compulsive behaviors. The condition is linked to depression and anxiety disorders and is associated with high rates of suicide.

More information: Luca Cocchi et al, Effects of transcranial magnetic stimulation of the rostromedial prefrontal cortex in obsessive–compulsive disorder: a randomized clinical trial, *Nature Mental Health* (2023). DOI: 10.1038/s44220-023-00094-0

Provided by QIMR Berghofer