

Can psychedelic drugs 'reconnect' depressed patients with their emotions?

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Imperial research suggests psilocybin can help relieve the symptoms of depression, without the 'dulling' of emotions linked with antidepressants.

Working out if someone is happy, angry or afraid, from the look on their face, is a skill we may take for granted.

For some people, however, such as those with chronic depression, this innate ability to pick up on and respond to emotional prompts like a facial expression can be disrupted, with the [brain](#) becoming oversensitive to negative stimuli.

While antidepressants drugs can help to combat the symptoms of depression for [patients](#), they can dampen how the brain processes strong emotions – effectively turning down the dial on the hypersensitivity to negative emotions but also 'blunting' intense positive mood.

Now, findings from a small trial carried out at Imperial College London suggest that psychedelics, like [magic mushrooms](#), may hold the key to sidestepping some of these effects in treating depression, by reviving the brain's activity and effectively reconnecting patients with their emotions.

Previous research has shown that psilocybin – the active compound in magic mushrooms – may help to alleviate symptoms in patients with persistent depression by 'resetting' [brain activity](#).

Treating depression

In a recent study, published in the journal *Neuropharmacology*, the Psychedelic Research Group at Imperial focused on the potential of the drug to change brain activity in key areas involved in [emotional processing](#).

They found that after [treatment](#) with psilocybin, patients with depression who did not respond to conventional treatments, reported improvements in their mood and symptoms. However, the researchers also observed a stronger response to emotional faces (happy and fearful) with increased

brain activity in an area called the amygdala – the almond-shaped region of the brain involved in processing emotions and which is known to play a role in depression.

According to the researchers, the findings suggest an alternative pathway to tackling the changes seen in the depressed brain, which could potentially avoid some of the side effects seen with "Prozac-like" selective serotonin reuptake inhibitors (SSRIs), the most commonly prescribed antidepressants.

"Our findings are important as they reveal biological changes after psilocybin therapy and, more specifically, they suggest that increased emotional processing is crucial for the treatment to work," explained Leor Roseman, first author of the study and a member of the Psychedelic Research Group.

Changing brain activity

In the small, open label trial – which means the patients knew what they were taking – a total of 20 volunteers with depression were recruited and asked not to take any antidepressant medication in the two weeks leading up to the trial. They were then given two oral doses of psilocybin alongside psychiatric support, receiving an initial low dose of the drug before taking a second, much stronger therapeutic dose a week later.

In order to capture changes in brain activity, 19 of the volunteers completed fMRI scans before and after the treatment. They were shown images of human faces that were either happy, scared or neutral, with the fMRI capturing their responses as changes in blood flow throughout different regions of the brain.

Following treatment, patients reported feeling emotionally re-connected and accepting, with one patient describing the experience as an

'emotional purging.'" Results from the scans revealed that patients had a stronger response to emotional faces (happy and fearful) following psilocybin treatment, particularly in the amygdala.

The authors highlight that while the findings are interesting, follow up studies are needed to confirm the effects are directly related to the drug, rather than other factors, such as the psychological support provided during the trial or stopping their SSRIs.

Larger trials are now planned by the group and their collaborators, in which patients with depression don't know whether they are receiving psilocybin, an SSRI or placebo, and parallel studies will be done in healthy non-depressed people. These studies will also aim to find out if psychedelic therapy has any lasting impact on activity in the amygdala and emotional processing.

"Having a healthy control group in future studies should be helpful in answering some of these questions," said Roseman. He added: "We also want to investigate how the amygdala responds a longer time after treatment, which will inform us about longer term effects – compared to the current study, which was only looked at one day after the therapy."

"Mystical' experience

In a second paper, published in the journal *Frontiers in Pharmacology*, Roseman and team used questionnaires to capture patients' feelings about the quality of their experience under the psilocybin and how this related to their depressed changes.

One of the dimensions of experience the researchers looked at has been called the "mystical experience," which includes any feelings of unity, a loss of boundaries of the self and transcending time and space during the treatment.

They found that the stronger a patient rated this experience, the greater their decreases in depressive symptoms weeks after treatment, suggesting the mystical element of their psychedelic experience may help them maintain long-term mental health.

Roseman adds that future trials with psychedelics may look at enhancing this aspect of the experience while reducing anxiety in order to improve the effectiveness of the therapy.

Building on its body of research to date, the group is now planning further studies which will compare [psilocybin](#) directly with a leading antidepressant for patients with treatment-resistant [depression](#). Trials are set to begin in early 2018.

More information: Leor Roseman et al. Increased amygdala responses to emotional faces after psilocybin for treatment-resistant depression, *Neuropharmacology* (2017). [DOI: 10.1016/j.neuropharm.2017.12.041](https://doi.org/10.1016/j.neuropharm.2017.12.041)

Quality of acute psychedelic experience predicts therapeutic efficacy of psilocybin for treatment-resistant depression. *Front. Pharmacol.* [DOI: 10.3389/fphar.2017.00974](https://doi.org/10.3389/fphar.2017.00974)

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