Using neurofeedback as a means of treating feelings of self-blame in depression

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New research from the Institute of Psychiatry, Psychology & Neuroscience (IoPPN) at King's College London has suggested that using neurofeedback to address self-blame in people experiencing non-

anxious major depressive disorder (MDD) can help to lessen key symptoms.

While the study, published in *Psychological Medicine*, didn't explicitly find neurofeedback to be a more effective approach than the comparative psychological intervention group, it was found to be a safe approach to managing depressive symptoms that warrants further investigation.

The investigation recruited 43 participants placed into two groups. One would receive guided therapy as a means of tackling self-blame, while the other group received similar care, but with the added aid of Functional MRI neurofeedback (fMRI).

Functional MRI (fMRI) neurofeedback provides individuals with a visual representation of their brain activity, giving participants information which would otherwise be outside of their awareness. A magnetic field is placed around a participant's head, allowing investigators to read the blood flow signals emitted by the brain.

During the course of three sessions completed by 35 participants, they were asked to try and tackle their feelings of self-blame while thinking about personal memories. They were asked to select from a list of possible strategies such as thinking about why they might not have been able to control the outcome, or be responsible for the outcome of an event, or to think about being forgiven by a specific person or forgiving themselves.

The neurofeedback gives the individual an indication of which of these strategies has the best chance of changing their brain signals in the desired way.

The investigation established that both approaches were found to be an

effective means of reducing depressive feelings.

Dr Roland Zahn, the study's lead investigator from King's IoPPN said, "Excitingly, we saw that symptom remission was associated with increases in self-esteem and this correlated with the frequency with which participants employed the psychological strategies in daily life.

"What needs further investigation, however, is that the neurofeedback was not found to be more effective than the simple psychological intervention."

The researchers suggest that the existence of sub-types of depression could be the reason why. Patients with non-anxious depression found that neurofeedback was much more effective at reducing their depressive symptoms, while those with anxious distress, a newer sub-type that has had little research conducted into it, responded better to solely psychological interventions.

Dr Zahn says, "While it is disappointing that we weren't able to establish a clear difference between interventions, we have a good basis upon which to further our study. We must now look to connect the right neurofeedback to the right depression sub-type.

"What our results do demonstrate is that self-blame-related neurofeedback is a safe intervention with clear clinical potential in current depression."

More information: Tanja Jaeckle et al, Self-blame in major depression: a randomised pilot trial comparing fMRI neurofeedback with self-guided psychological strategies, *Psychological Medicine* (2021). DOI: 10.1017/S0033291721004797

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