

# Study shows brain response to unfair situations can predict future depression levels in healthy people

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(Medical Xpress)—A trio of researchers with Tamagawa University and the National Institute of Information and Communications Technology, both in Japan, has found that it is possible to predict the level of

depression a person will report a year after playing a video game while also undergoing an MRI scan. In their paper published in the journal *Nature Human Behavior*, the group describes their study, what they found and some possible implications for those who suffer from depression. Megan Speer and Mauricio Delgado with Rutgers University offer a News & Views piece on the work done by the team in the same journal issue.

Chronic [depression](#) impacts not just those who suffer from it, but their families and friends as well. It also leads to problems at work, which, when taken as a whole, can adversely impact the productivity of entire countries. Ominously, recent studies have shown that more people are suffering from [chronic depression](#) as economic inequity becomes a bigger problem. Such studies, Speer and Delgado note, offer statistics, but little work has been done to better understand what happens in the brain when people become depressed due to such circumstances. In this new effort, the researchers have addressed the problem head-on by asking volunteers to engage in computer games that may leave them feeling similar to those who believe their life circumstances are not very fair—and watching what happens in their brain as it occurs.

In the study, volunteers were asked to play a video game in which rewards were offered—some of the volunteers were given more than half of the rewards, some were given less than half, and a third group got the same as other players. As the volunteers played the game, the researchers watched blood flow in the brain courtesy of an MRI machine. The researchers focused on the amygdala and hippocampus because they have been associated with [depression symptoms](#) in people. They report that the way those brain regions responded when players felt the game was unfair toward them offered a reliable means for predicting depression levels in those people a year later—and that was regardless of whether the volunteer had scored as a pro-social person versus an individualist on a test before playing the [video game](#). They also found

that among the brains of volunteers who received more than their share, they could only predict depressive levels in pro-social people.

The researchers also note that the predictions could not have been made using conventional testing. And they further note that their findings also suggest that depressive events can have long-term consequences for people who do not normally suffer from depression.

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