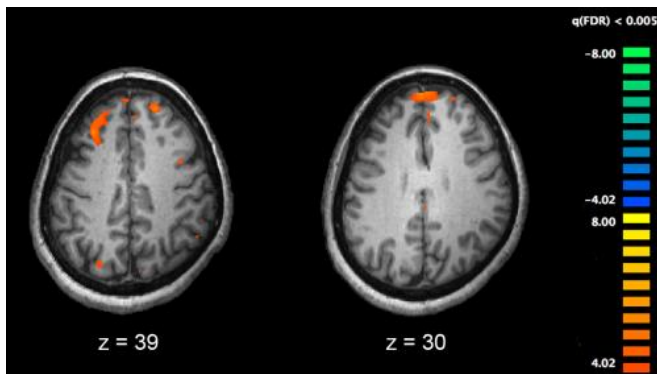


# Patients with schizophrenia make less risky decisions and have less tolerance for economic injustices

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Functional magnetic resonance imaging (fMRI) and other brain imaging technologies allow for the study of differences in brain activity in people diagnosed with schizophrenia. The image shows two levels of the brain, with areas that were more active in healthy controls than in schizophrenia patients shown in orange, during an fMRI study of working memory. Credit: Kim J, Matthews NL, Park S./PLoS One.

Researchers from the Jaume I University (UJI), the CEU Cardenal Herrera University (CEU UCH) of Castellón and French University Bourgogne Franche-Comité (UBFC) of Dijon have just published a study that evaluates the risk-based decisions and the perception of economic injustice in people who consume cocaine and who have associated mental pathologies, schizophrenia or antisocial personality disorder. The results, which have been published today in *Scientific Reports*, reveal that people with schizophrenia take less-risky decisions and have less tolerance for economic injustices in comparison to healthy people.

In the study, participants took part in an experiment with two types of decisions. First, they had to choose between different lottery bets in a

task aimed at evaluating their degree of aversion to economic risk. Second, they took part in a modified version of the "dictator game," which makes it possible to arouse altruistic or non-altruistic attitudes in situations of both advantageous and disadvantageous economic injustices. People with mental diseases face these types of decision-making processes influenced by [past experiences](#) linked to risk and comparing and finding differences with other experiences. So both scenarios were designed with the goal of observing their decision-making process in each circumstance.

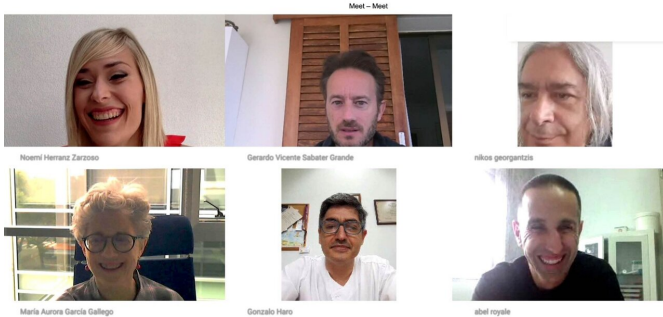
The results of the study show that participants with antisocial personality disorder associated with the consumption of cocaine did not show significant differences compared to the control group, consisting of students from the UJI who voluntarily participated in the experiment. However, among the people with schizophrenia who consume cocaine, there were statistically significant differences: On one hand, their economic decisions were less risky when choosing lottery bets, and on the other, they showed less tolerance for the economic injustice in the modified dictator game.

## Economic decisions and psychosocial treatment

In light of these results, and given the lack of clear patterns in prior studies, the authors of the research highlight the interest in studying the economic decision-making process in order to design psychosociological treatments for dual pathology: mental pathologies associated with drug consumption. Gonzalo Haro, Medicine professor at the CEU UCH, says that experimental economy studies such as this one "can contribute to a suitable evaluation of the patients on behalf of psychiatrists regarding a possible legal incapacitation to make use of their money and

assets, especially in the case of people addicted to cocaine who suffer schizophrenia."

**More information:** Gerardo Sabater-Grande et al. Risk-taking and fairness among cocaine-dependent patients in dual diagnoses: Schizophrenia and Anti-Social Personality Disorder, *Scientific Reports* (2020). [DOI: 10.1038/s41598-020-66954-2](https://doi.org/10.1038/s41598-020-66954-2)



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Abel Baquero, fellow professor of the CEU UCH, says, "The results of the research are further proof of the importance of studies on economic behavior as a useful tool, both in mental health and addictions, as they make it possible to have valuable additional information for the treatment of dual pathology."

Schizophrenia and [antisocial personality disorder](#) are the two pathologies that are most associated to the consumption of cocaine, the most consumed illegal substance in Europe. It is believed that 2.3 million European youths aged 15 to 34 consume it. In Spain, cocaine is the cause of 36.5% of cases that require treatment for drug consumption, and half of the total cases linked to drug consumption that are attended in emergency rooms.

The team of behavioral experimentalists of the UJI, coordinated by professor Aurora García Gallego, has ample experience in the implementation of experimental methodology on very diverse population samples, although this has been the first field experiment with patients. "The type of results obtained and the external validity showed on behalf of the scientific community has left an open door that is as important as it is encouraging for future studies of relevance for medicine," he says.

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