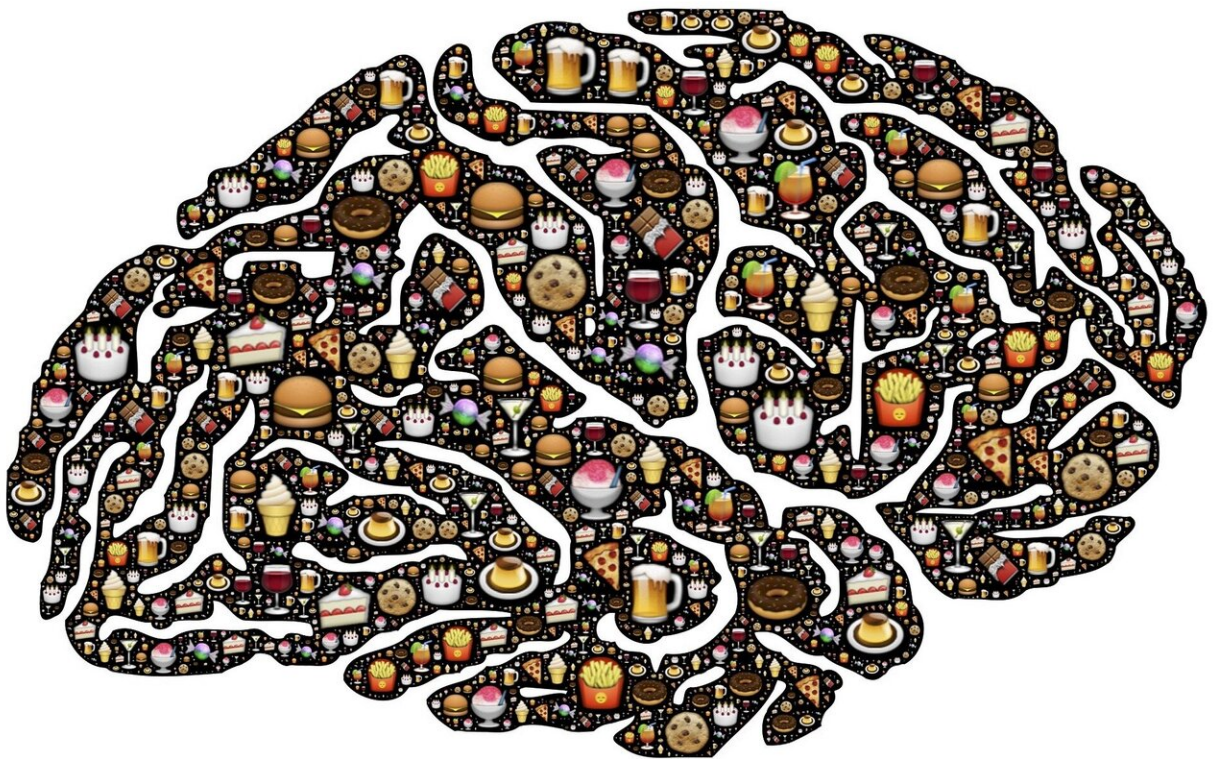


# Distrust of past experience may underlie obsessive-compulsive symptoms

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People with higher obsessive-compulsive symptoms may place less trust

in their past experience, leading to increased uncertainty, indecisiveness, and exploratory behaviors, according to new research presented in *PLOS Computational Biology* by Isaac Fradkin of The Hebrew University of Jerusalem, Israel, and colleagues.

Obsessive-compulsive disorder (OCD) is characterized by [intrusive thoughts](#), urges, or images that cause marked distress, and repetitive behavioral or mental rituals. For example, after turning off the lights, a person with OCD can easily become unsure whether the lights are off, and return repeatedly to check. Such [behavior](#) might reflect difficulty in trusting acquired experience, leading to an excessive need for gathering updated evidence.

To test that hypothesis, Fradkin and colleagues asked 58 people with varying levels of obsessive-compulsive symptoms to complete a decision-making task in which they had to balance the weight they assigned to prior experience with the weight given to more recent observations.

By defining the [decision-making process](#) with a set of mathematical equations, the researchers were able to show that participants with higher obsessive-compulsive symptoms indeed tended to distrust past experience, leading to a constant experience of the environment as unpredictable. These participants were also less able to predict the feedback they received for their choices, such that they were both more surprised by predictable feedback, and less surprised by unpredictable feedback.

"Our findings highlight a novel framework for understanding the cognitive and computational process that gives rise to obsessive compulsive symptoms," Fradkin said. "The results also stand in stark contrast with the common preconception of OCD as being characterized by inflexible behavior, distinguished by overreliance on past experience."

Unlike other OCD research that has focused on uncertainty, doubts, and indecisiveness, this study examined a more specific, well-defined process that could be defined mathematically. The new findings could contribute to the development of computational models that delineate the exact mechanisms leading to specific clinical symptoms, potentially informing the design of novel OCD treatments.

**More information:** Fradkin I, Ludwig C, Eldar E, Huppert JD (2020) Doubting what you already know: Uncertainty regarding state transitions is associated with obsessive compulsive symptoms. *PLoS Comput Biol* 16(2): e1007634. [doi.org/10.1371/journal.pcbi.1007634](https://doi.org/10.1371/journal.pcbi.1007634)

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