

Brain mechanisms of social conformity

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New research reveals the brain activity that underlies our tendency to "follow the crowd." The study, published by Cell Press in the January 15th issue of the journal *Neuron*, provides intriguing insight into how human behavior can be guided by the perceived behavior of other individuals.

Many studies have demonstrated the profound effect of group opinion on individual judgments, and there is no doubt that we look to the behavior and judgment of others for information about what will be considered expected and acceptable behavior.

"We often change our decisions and judgments to conform with normative group behavior," says lead study author Dr. Vasily Klucharev from the F.C. Donders Center for Cognitive Neuroimaging in The Netherlands. "However, the neural mechanisms of social conformity remain unclear."

Dr. Klucharev and colleagues hypothesized that social conformity might be based on reinforcement learning and that a conflict with group opinion could trigger a "prediction error" signal. A prediction error, first identified in reinforcement learning models, is a difference between expected and obtained outcomes that is thought to signal the need for a behavioral adjustment.

The researchers used functional magnetic resonance imaging to examine brain activity in subjects whose initial judgments of facial attractiveness were open to influence by group opinion. Specifically, they examined

the rostral cingulate zone (RCZ) and the nucleus accumbens (NAc). The RCZ is thought to play a role in monitoring behavioral outcomes, and the NAc has been implicated in the anticipation and processing of rewards as well as social learning.

The study authors found that a conflict with the group opinion triggered a long-term conforming adjustment of an individual's own rating and that conflict with the group elicited a neuronal response in the RCZ and NAc similar to a prediction error signal. Further, the magnitude of the individual conflict-related signal in the NAc correlated with differences in conforming behavior across subjects.

"The present study explains why we often automatically adjust our opinion in line with the majority opinion," says Dr. Klucharev. "Our results also show that social conformity is based on mechanisms that comply with reinforcement learning and is reinforced by the neural error-monitoring activity which signals what is probably the most fundamental social mistake—that of being too different from others."

Source: Cell Press

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