Hormones affect voting behavior, study finds

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Researchers from the University of Nebraska at Omaha (UNO), the University of Nebraska-Lincoln (UNL) and Rice University have released a study that shows hormone levels can affect voter turnout.

As witnessed by recent voter turnout in primary elections, participation in U.S. national elections is low, relative to other western democracies.

In fact, voter turnout in biennial national elections ranges includes only 40 to 60 percent of eligible voters.

The study, published June 22 in *Physiology and Behavior*, reports that while participation in electoral politics is affected by a host of social and demographic variables, there are also biological factors that may play a role, as well. Specifically, the paper points to low levels of the stress hormone cortisol as a strong predictor of actual voting behavior, determined via voting records maintained by the Secretary of State.

"Politics and political participation is an inherently stressful activity," explained the paper's lead author, Jeff French, Varner Professor of Psychology and Biology and director of UNO's neuroscience program. "It would logically follow that those individuals with low thresholds for stress might avoid engaging in that activity and our study confirmed that hypothesis."

Additional authors on the paper are Adam Guck and Andrew K. Birnie from UNO's Department of Psychology; Kevin B. Smith and John R. Hibbing from UNL's Department of Political Science; and John R. Alford from the Department of Political Science at Rice University.

The study is part of a larger body of research exploring connections between biology and political orientation, led by Smith and Hibbing. Previous studies have involved twins, eye-tracking equipment and skin conductance in their efforts to identify physical and genetic links to political beliefs.

"It's one more piece of solid evidence that there are biological markers for political attitudes and behavior," said Smith. "It's long been known that cortisol levels are associated with your willingness to interact socially – that's something fairly well established in the research literature. The big contribution here is that nobody really looked at

politics and voting behaviors before."

"This research shows that cortisol is related to a willingness to participate in politics," he said.

To reach their conclusion, researchers collected the saliva of over 100 participants who identified themselves as highly conservative, highly liberal or disinterested in politics altogether and analyzed the levels of cortisol found.

Cortisol was measured in saliva collected from the participants before and during activities designed to raise and lower stress. These data were then compared against the participants' earlier responses regarding involvement in political activities (voting and nonvoting) and religious participation.

"Not only did the study show, expectedly, that high-stress activities led to higher levels of cortisol production, but that political participation was significantly correlated with low baseline levels of cortisol," French explained. "Participation in another group-oriented activity, specifically religious participation, was not as strongly associated with cortisol levels. Involvement in nonvoting political activities, such as volunteering for a campaign, financial political contributions, or correspondence with elected officials, was not predicted by levels of stress hormones."

According to the study, the only other factor that was predictive of voting behavior was age; older adults were likely to have voted more often than younger adults. Research from other groups has also pointed to education, income, and race as important predictors of voting behavior.

In explaining why elevated cortisol could be linked with lower rates of participation in elections, French cited previous experiments in which

high levels of afternoon cortisol are linked to major depressive disorder, social withdrawal, separation anxiety and enhanced memory for fearful stimuli.

"High afternoon cortisol is reflective of a variety of social, cognitive, and emotional processes, and may also influence a trait as complex as voting behavior," French suggested.

"The key takeaway from this research, I believe, is that while social scientists have spent decades trying to predict voting behavior based on demographic information, there is much to be learned from looking at biological differences as well," he said. "Many factors influence the decision to participate in the most important political activity in our democracy, and our study demonstrates that stress physiology is an important biological factor in this decision. Our experiment helps to more fully explain why some people engage in electoral politics and others do not."

More information: A link to the study can be found here: http://www.sciencedirect.com/science/article/pii/S0031938414002595

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