

Two genes do not make a voter: new research

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Voting behavior cannot be predicted by one or two genes as previous researchers have claimed, according to Evan Charney, a Duke University professor of public policy and political science.

In "[Candidate Genes](#) and Political Behavior," a paper published in the February 2012 *American Political Science Review*, Charney and co-author William English of Harvard University call into question the validity of all studies that claim that a common gene variant can predict complex behaviors such as voting.

They use as an example a 2008 study by James H. Fowler and Christopher T. Dawes of the University of California, San Diego which claimed that two genes predict voter turnout. Charney and English demonstrate that when certain errors in the original study are corrected -- errors common to many gene association studies -- there is no longer any association between these genes and voter turnout.

"The study of Fowler and Dawes is wrong," Charney said. "Two genes do not predict turnout. We reran the study using all of their assumptions, equations, and data and found that their results were based upon errors they made. When we corrected the errors, there was no longer any association between these two genes and voter turnout."

Charney and English also document how the same two genes that Fowler and Dawes claimed would predict voter turnout are also said to predict, according to other recently published studies, alcoholism, Alzheimer's disease, [anorexia nervosa](#), [attention deficit hyperactivity disorder](#),

autism, depression, epilepsy, [extraversion](#), insomnia, migraines, narcolepsy, obesity, [obsessive compulsive disorder](#), panic disorder, Parkinson's disease, postpartum depression, [restless legs syndrome](#), premature ejaculation, schizophrenia, smoking, success by professional Wall Street traders, [sudden infant death syndrome](#), suicide, Tourette syndrome, and several hundred other behaviors. They point to a number of studies that attempted to confirm these findings and could not.

"Researchers the world over are using data sets that contain behavioral information about study participants along with limited genetic data for a handful of their genes," Charney said. "Often, the genetic data contained in these various data sets is limited to the very same four or five genes. The result is that the same genes are now said to predict an astonishing array of human behavior."

"How could one common [gene variant](#) possibly predict so many diverse behaviors?" Charney asked. "And what are the odds that the very same handful of genes -- out of an estimated 25,000 to 30,000 genes -- will miraculously turn out to be the genetic key to all of human behavior?"

Charney and English also note that the underlying assumption of gene association studies is at odds with our current understanding of the relationship between genes and complex human behaviors, such as political behavior.

"There is a growing consensus that complex traits that are heritable are influenced by differences in thousands of genes interacting with each other, with the epigenome (which regulates gene expressivity), and with the environment in complex ways," Charney said. "The idea that one or two genes could predict something like voting behavior or partisanship violates all that we now know about the complex relationship between genes and traits."

More information: "Candidate Genes and Political Behavior," in the February 2012 *American Political Science Review*, is available online: [journals.cambridge.org/action/ ... splayJournal?jid=PSR](http://journals.cambridge.org/action/...splayJournal?jid=PSR)

Provided by Duke University

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