Medical Xpress

Women who attempt suicide exhibit different protein levels years after the attempt

December 5 2017

Credit: CC0 Public Domain

Women with a history of suicide attempts exhibit different levels of a specific protein in their bloodstream than those with no history of suicide attempts, according to new research from Binghamton University, State University of New York.

Graduate student Anastacia Kudinova and Brandon E. Gibb, professor of

psychology and director of clinical training at Binghamton University, recruited 73 women as part of a larger study focused on risk for depression and anxiety in families. They put the women into two groups—34 women had a lifetime history of suicide attempts and 39 women had no lifetime history of suicide attempts. The researchers tested plasma levels in both groups for BDNF, or brain-derived neurotropic factor, a protein found in the brain and periphery that is critical to the creation and functioning of neurons and the ability of synapses to strengthen or weaken over time. They found that women with a history of suicide attempts displayed lower circulating levels of BDNF than women with no history of suicide attempts.

This evidence suggests that the level of BDNF found within a woman's circulatory system serves as a promising biomarker for suicidal behavior.

"For this experiment, it was really important to understand that women with a history of suicide attempts who are not in a current suicidal crisis still have a BDNF marker that shows up lower," said Gibb. "This suggests that BDNF is not just a marker of a person's current suicidality or mood, but is actually a stable marker that may be able to predict risk of future suicide attempts."

Kudinova, a graduate student in Gibb's lab who designed and conducted the project, said: "Another key finding is that this was independent of a number of factors that could potentially influence BDNF levels—the participant's current suicidality and mood; lifetime history of other mental health conditions, such as anxiety and substance use disorders; lifetime smoking history; BMI; body temperature; age; and ethnicity - which highlights the robustness of the results and adds to the value of BDNF as a promising biomarker for suicidal behavior."

According to Gibb, the implications of this research have far-reaching effects.

"Testing BDNF levels can be incorporated into the standard blood test your primary care physician runs at annual checkups," said Gibb. "Just like cholesterol levels help to determine levels of risk for heart disease, eventually doctors could have mental health tests that determine suicide risk."

More information: Anastacia Y. Kudinova et al, Circulating Levels of Brain-Derived Neurotrophic Factor and History of Suicide Attempts in Women, *Suicide and Life-Threatening Behavior* (2017). DOI: 10.1111/sltb.12403

Provided by Binghamton University