

High stress, hostility, depression linked with increased stroke risk

July 10 2014



Micrograph showing cortical pseudolaminar necrosis, a finding seen in strokes on medical imaging and at autopsy. H&E-LFB stain. Credit: Nephron/Wikipedia

Higher levels of stress, hostility and depressive symptoms are associated with significantly increased risk of stroke or transient ischemic attack (TIA) in middle-age and older adults, according to new research in the American Heart Association journal *Stroke*.

A TIA is a stroke caused by a temporary blockage of blood flow to the brain.

Researchers investigated how psychological factors might influence risk for chronic disease, using data from the Multi-Ethnic Study of Atherosclerosis (MESA), an ongoing study on [cardiovascular disease risk factors](#) in participants living in six U.S. cities.

More than 6,700 adults (ages 45-84; 53 percent women) completed questionnaires assessing chronic stress, [depressive symptoms](#), anger and hostility over two years. Participants were 38.5 percent white, 27.8 percent African-American, 11.8 percent Chinese and 21.9 percent Hispanic. All were free of [cardiovascular disease](#) at the start of the study.

In follow-up for an additional 8.5 to 11 years, 147 strokes and 48 TIAs occurred.

Compared to people with the lowest psychological scores, those with highest scores were:

- 86 percent more likely to have a stroke or TIA for high depressive symptoms.
- 59 percent more likely to have a stroke or TIA for the highest chronic stress scores.
- More than twice as likely to have a stroke or TIA for the highest hostility scores.
- No significant increased risk was linked to anger.

"There's such a focus on traditional risk factors—cholesterol levels, blood pressure, smoking and so forth—and those are all very important, but studies like this one show that psychological characteristics are equally important," said Susan Everson-Rose, Ph.D., M.P.H., study lead

author and associate professor of medicine at the University of Minnesota in Minneapolis.

These associations noted in the study were significant even when researchers accounted for age, race, sex, health behaviors and other known risk factors of stroke.

"Given our aging population, it's important to consider these other factors that might play a role in disease risk. Stroke is a disease of the elderly predominantly, and so learning more about things that can influence risk for [stroke](#) as people age is important."

Researchers measured [chronic stress](#) in five domains: personal health problems, health problems of others close to the participant, job or ability to work, relationships and finances.

They assessed depressive symptoms with a 20-question scale and analyzed anger with a 10-item scale that captured the extent and frequency of experiencing that emotion. Hostility, which is a negative way of viewing the world, was measured by assessing a person's cynical expectations of other people's motives.

"One thing we didn't assess is coping strategies," Everson-Rose said. "If someone is experiencing depressive symptoms or feeling a lot of stress or hostility, we don't know how they manage those, so it's possible that positive coping strategies could ameliorate some of these associations or effects," she said. "We did not inquire about coping. I would say that's one of the tasks for future studies."

Researchers didn't identify potential racial and ethnic differences or sex differences in the observed associations, but were not able to fully examine such differences due to the smaller numbers of strokes in some groups.

Provided by American Heart Association

Citation: High stress, hostility, depression linked with increased stroke risk (2014, July 10)
retrieved 24 April 2024 from

<https://medicalxpress.com/news/2014-07-high-stress-hostility-depression-linked.html>

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