Certain Personality Traits Can Predict Plaque Buildup in the Brain

Brain plaques associated with Alzheimer's disease show up early in people who scored higher in neuroticism and lower in conscientiousness.

October 19, 2021 By Jeanette L. Pinnace

The symptoms of Alzheimer's disease (AD), a progressive illness, vary from person to person. However, new study findings published in the journal Biological Psychiatry show that an individual's predisposition to neuroticism, or negative thinking, and being less conscientious, or careful, organized and goal-directed, can predict the buildup of plaque linked with AD, according to a press release from Florida State University (FSU).

The accumulation of the plaques and tangles that distinguish the form of dementia associated with AD are generated by deposits of the proteins beta-amyloid and tau that spread through the brain disrupting cognitive functions and causing issues such as memory loss and thinking and behavioral problems.

For the study, researchers from FSU's College of Medicine merged data from the Baltimore Longitudinal Study of Aging (BLSA) with a summary of 12 previously published studies about possible links between personality traits and the progression of Alzheimer's disease. All together the data spanned more than 3,000 participants.

Conducted by the National Institute on Aging, part of the National Institutes of Health, BLSA is a study of human aging that launched in 1958. At that time, scientists calculated individuals' personality via a five-factor test. Advanced brain imaging technology allowed today's researchers to evaluate the development of amyloid and tau plaques found in those participating in this study. (At baseline, no individuals had dementia or other serious illnesses.)

"Until recently, researchers measured amyloid and tau in the brain through autopsy—after people died," said Antonio Terracciano, PhD, a professor of geriatrics at FSU and the lead study author. "In recent years, advances in medical imaging have made it possible to assess neuropathology when people are still alive, even before they show any symptoms."

Researchers found that individuals with higher levels of neuroticism—a tendency toward negative thinking—and lower levels of conscientiousness had more apparent amyloid and tau deposits.

According to scientists, the findings suggested that high levels of conscientiousness and low levels of neuroticism can help delay or stop the development of AD.

“Such protection against neuropathology may derive from a lifetime difference in people’s emotions and behaviors,” advised Terracciano. “For example, past research has shown that low neuroticism helps with managing stress and reduces the risk of common mental health disorders. Similarly, high conscientiousness is consistently related to healthy lifestyles, like physical activity. Over time, more adaptive personality traits can better support metabolic and immunological functions and ultimately prevent or delay the neurodegeneration process.”

To learn more about how amyloid and tau proteins affect people, read “One Alzheimer’s Protein Builds Up More Quickly in Women.”

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