



Two personality types may be linked to Alzheimer's pathology



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New research connects two personality types with the hallmarks of Alzheimer's disease and related dementias. kulliprashant/Getty Images

- **A buildup of amyloid plaques and tau tangles in the brain is associated with Alzheimer's disease and related dementias.**
- **A new study finds that being neurotic or conscientious may increase or decrease, respectively, the odds of developing these buildups.**
- **It remains unclear, however, whether this association is a result of the lifestyles that may characterize these personality types.**

[Previous research](#) [🔗] has found that some personality traits are risk factors for Alzheimer's disease and related dementias. However, scientists have been unable to find a causal link.



proteins in the brain is likewise [associated with](#) the disease and related dementias. Now, a new study explores a possible link between personality traits and these health issues.

The study finds that neuroticism increases the likelihood of developing amyloid plaques and tau tangles, and that being conscientious reduces the likelihood of developing them.

[Antonio Terracciano, Ph.D.](#), a professor in the Department of Geriatrics at Florida State University, explains what is new about this study:

“We have done studies showing who’s at risk of developing dementia, but those other studies were looking at the clinical diagnosis. Here, we are looking at the neuropathology; that is, the lesions in the brain that tell us about the underlying pathological change.”

The study paper has been published in the journal *Biological Psychiatry*.

Neuroticism and conscientiousness

Neuroticism and conscientiousness are two of the so-called Big Five personality traits often cited by researchers and mental health experts. These traits emerge early in life and, as the study says, “have a broad impact on important life outcomes.” They are:

- **Conscientiousness:** This describes someone who is responsible, careful, and goal- and detail-oriented.
- **Agreeableness:** This describes a person who is respectful, compassionate, trusting and tries to avoid problems.
- **Neuroticism:** This describes someone who gravitates toward unsettling emotions, such as anxiety and depression.



- **Extraversion or Extroversion:** This describes someone who seeks excitement and is active and highly sociable.

Two analyses, one pair of conclusions

The authors of the study performed two investigations involving over 3,000 participants.

The first analyzed data from people participating in the [Baltimore Longitudinal Study of Aging \(BLSA\)](#), an ongoing study of community-dwelling adults. The participants completed a 240-item questionnaire based on the [Revised NEO Personality Inventory](#) test to identify their Big Five traits.

Within a year of the questionnaire, the absence or presence of amyloid plaques and tau proteins in their brains was assessed via PET scans.

The second was a meta-analysis of 12 studies that investigated associations between the pathology of Alzheimer's disease and personality traits.

What the analyses found



were more likely to have developed amyloid plaques and tau tangles. People with high conscientiousness or low neuroticism scores were less likely to have them.

[Dr. Claire Sexton](#), director of scientific programs and outreach at Alzheimer's Association, who was not involved in the study, told *Medical News Today*, "It's especially intriguing to see complementary findings between the BLSA cohort and the meta-analyses."

She explained, "Research has looked at other personality traits, such as openness and extraversion, in relationship with dementia, but neuroticism and conscientiousness has the strongest link, according to recent meta analyses."

When asked if the association occurs at some specific level of neuroticism or conscientiousness, Prof. Terracciano said, "These associations seem to be linear without a threshold [...] and there is no specific level that triggers resistance or susceptibility."

The researchers also discovered that the association between these personality traits and pathology was strongest in people who were cognitively normal at the time of the assessment in the BLSA study or studies included in the meta-analysis.

This suggests that personality type may be a risk factor before the emergence of amyloid and tau.

The opposite appears not to be true. The researchers note, "These patterns suggest that the associations are not emerging phenomena owing to personality change with disease progression, as would be expected with reverse causality."

Causal link?

"Because this study is observational, we can't say for sure what the mechanisms are, and much more research is needed," Dr. Sexton noted.



“One potential pathway is inflammation, which is associated with personality and the development of Alzheimer’s biomarkers. Lifestyle is another potential pathway. For example, highly conscientious individuals have been shown to have healthier lifestyles — in terms of physical activity, smoking, sleep, depression, cognitive stimulation, etc. — than those with lower conscientiousness. There is a solid body of research connecting lifestyle, dementia risk, and biomarkers.”

Prof. Terracciano suggested yet another idea to *MNT*:

“There are aspects of neuroticism and conscientiousness that might directly impact the risk of dementia. Traits like neuroticism shape our emotional life, the way we cope with stress and deal with our feelings. Conscientiousness is defined by our level of grit, persistence, and playful attitudes.”

Alzheimer's / Dementia Neurology / Neuroscience Psychology / Psychiatry
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