

Alzheimer's disease: When does personality start to change?

By Ana Sandoiu | Published Friday 22 September 2017



Mood swings and apathy are known to affect the personality of those living with Alzheimer's disease.

A new study recently published in the journal *JAMA Psychiatry* investigates whether or not changes in personality precede the onset of mild cognitive impairment or dementia.

The researchers - who were jointly led by Antonio Terracciano and Angelina Sutin, both associate professors at Florida State University College of Medicine in Tallahassee - investigated dementia-related personality changes in a cohort of more than 2,000 people.

The longitudinal study followed these participants for 36 years, during which time the researchers looked for increased neuroticism, decreased conscientiousness, and other personality changes.

It is known that personality and behavioral changes accompany Alzheimer's disease. Caregivers report irritability, moodiness, or loss of motivation in their patients, which negatively affect their quality of life.

These are clinical criteria for diagnosing the illness, but it remains debatable whether or not these changes occur *before* the onset of dementia - as a consequence of the brain pathologies that characterize the disease and occur years before a formal diagnosis - or whether personality changes are just independent risk factors for the condition.

Personality stays the same before onset

For the new study, 2,046 participants were recruited from the Baltimore Longitudinal Study of Aging. Of them, 45.5 percent were female, and the average age was 62 years.

During the follow-up period, little over 5 percent of the participants developed mild cognitive impairment (MCI) and 12.5 percent developed dementia. The majority of these patients had Alzheimer's disease.

MCI describes a level of cognitive decline that affects seniors. Although it is not serious enough to interfere with the daily functioning of those it affects, MCI is considered to be a strong predictor of Alzheimer's disease.

Prof. Terracciano and colleagues used the Revised NEO Personality Inventory to assess changes in personality traits, as they were observed and reported by the participants themselves.

The questionnaire assessed five different personality dimensions: "neuroticism, extraversion, openness, agreeableness, and conscientiousness."

The researchers examined the "slopes" that depicted personality changes over time, and they compared the trajectories of those who went on to develop dementia or MCI with those of cognitively healthy participants.

Having adjusted for age, sex, race, and education, the researchers found that "change in personality [...] was not significantly different between the non-impaired and the Alzheimer's disease group."

When compared with healthy individuals, participants who developed MCI did not exhibit any personality changes, either.

In other words, the study found that the personalities of people with Alzheimer's disease remain unchanged before the onset of the condition.

We further found that personality remained stable even within the last few years before the onset of mild cognitive impairment."

– Prof. Antonio Terracciano

Additionally, the study adds to the evidence showing that certain personality traits, such as high levels of neuroticism, can increase the risk of dementia.

The authors write that these results "provide evidence against the reverse causality hypothesis." This hypothesis refers to the possibility that changes in personality are a consequence of Alzheimer's neuropathology, such as the build-up of amyloid plaque in the brain.

But the findings strengthen the idea that certain personality traits associated with Alzheimer's disease are, in fact, independent risk factors for the condition, rather than a consequence of it.

Strengths and limitations of the study

Speaking about the study's strengths, Prof. Terracciano says, "Unlike previous research, this study examined multiple waves of self-rated personality data collected up to 36 years before participants developed any sign of dementia."

In addition to the long-term follow-up, the authors list the considerable sample size and the "in-depth personality and clinical assessments" as strengths of the study.

However, they also admit some limitations to their research. For one thing, the sample was limited to people with a higher level of education.

Also, participants who did not develop dementia during the follow-up tended to be younger on average, so the authors concede that these people may go on to develop dementia in the future.

Finally, the authors note that some personality traits might make some people resilient to the brain pathology that characterizes Alzheimer's disease. More research is warranted in this direction.