Feeling young could mean your brain is aging more slowly

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While everyone gets older, not everyone feels their age. A recent study finds that such feelings, called subjective age, may reflect brain aging. Using MRI brain scans, researchers found that elderly people who feel younger than their age show fewer signs of brain aging, compared with those who feel their age or older than their age. Published in open-access journal *Frontiers in Aging Neuroscience*, this study is the first to find a link between subjective age and brain aging. The results suggest that elderly people who feel older than their age should consider caring for their brain health.

We tend to think of aging as a fixed process, where our bodies and minds change steadily. However, the passing years affect everyone differently. How old we feel, which is called our subjective age, also varies between people—with many feeling older or younger than their actual age.

But is subjective age just a feeling or attitude, or does it reflect how our bodies are actually aging? This question intrigued Dr. Jeanyung Chey of Seoul National University in Korea.

"Why do some people feel younger or older than their real age?" asks Chey. "Some possibilities include depressive states, personality differences or physical health. However, no-one had investigated brain aging processes as a possible reason for differences in subjective age."

People frequently experience some cognitive impairment as they age. In fact, the brain shows a variety of age-related changes that are reflective of declining neural health, including reductions in gray matter volumes. Recently developed techniques can help researchers to identify brain features associated with aging, to provide an estimated brain age.

Chey and her colleagues applied these techniques to investigate the link between subjective age and brain aging. They performed MRI brain scans in 68 healthy people whose ages ranged from 59-84 years and looked at gray matter volumes in various brain regions. The participants also completed a survey, which included questions on whether they felt older or younger than their age and questions assessing their cognitive abilities and perceptions of their overall health.

People who felt younger than their age were more likely to score higher on a memory test, considered their health to be better and were less likely to report depressive symptoms. Critically, those who felt younger than their age showed increased gray matter volume in key brain regions. The researchers used the MRI data to calculate estimated brain ages for the participants.

"We found that people who feel younger have the structural characteristics of a younger brain," said Chey. "Importantly, this difference remains robust even when other possible factors, including personality, subjective health, depressive symptoms, or cognitive functions, are accounted for."

The researchers hypothesize that those who feel older may be able to sense the aging process in their brain, as their loss of gray matter may make cognitive tasks more challenging.

However, at present the researchers do not know for sure if these brain characteristics are directly responsible for subjective age and will need to carry out long-term studies to understand this link further.

One intriguing possibility is that those who feel younger are more likely to lead a more physically and mentally active life, which could cause improvements in brain health. However, for those who feel older, the opposite could be true.

"If somebody feels older than their age, it could be sign for them to evaluate their lifestyle, habits and activities that could contribute to brain aging and take measures to better care for their brain health," said Chey.

The research is part of a special article collection on assessment of brain aging across the lifespan.

More information: Seyul Kwak et al, Feeling How Old I Am: Subjective Age Is Associated With Estimated Brain Age, *Frontiers in Aging Neuroscience* (2018). DOI: 10.3389/fnagi.2018.00168

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