

Psychology: Discuss to what extent mental factors impact aging

As a person gets older changes occur in all parts of the body, including the brain. Mental factors such as decision-making, concentration levels, as well as arousal all affect the way we age. A lot of the time people tend to only look at how aging impacts our psyche, which is not incorrect. As we grow older certain parts of our brain shrink, including those involved in learning and cognition, furthermore, in certain regions of the brain communication between neurons may also be impacted, which explains why older adults may have trouble recalling names, and words or have an overall decrease in the ability to pay attention or multitask. However, mental factors and aging can be correlational, and not just causal. Studies have shown that the biological age of humans undergoes a rapid increase in response to diverse forms of stress.¹ The biological age is not the same as your chronological age, however, since chronological age is how long you've existed whereas, your biological age depends on various factors. Chronological aging can largely influence how your brain functions and its cognitions, though similarly, mental factors such as decision-making and concentration can impact your biological age.

It's no surprise that as a person ages changes in the body coincide. Changes occur not only externally but internally as well, specifically in the brain. Some changes in the brain include changes in cognition and emotion that have impacts on subjective well-being, social relationships, decision-making, and self-control. Even though these changes can be considered out of one's hands, the way individuals respond to these challenges has implications for their independence, cognitive function, social relationships, mental health, as well as their physical function. Recent research has shown that social relationships have an important impact on health and well-being as one ages. For instance, subjective feelings of loneliness are known to be a risk factor for serious functional declines and even death, and converging lines of evidence from multiple cross-national epidemiological studies indicate that social isolation is a major risk factor for morbidity and premature mortality.² This means that one's cognition in a social context and their ability to socialize will affect their biological age. Moreover, social cognition is not the only factor that impacts your biological age, factors such as stressful life events and how one deals with them as well as mental illness have been shown to have an impact on aging; Since everything psychological is also physiological.

They were first looking at stress. According to recent studies, the biological age of humans undergoes a rapid increase in response to various stressors. Everyone stresses from time to time though according to a study done by Zachary M. Harvanek, Nia Fogelman, Ke Xu, and Rajita Sinha chronic stress can be linked to negative long-term health consequences which in turn raises the possibility that stress is related to an acceleration in one's age. They conducted

¹ Stokes, Victoria, and James White. "Stress Can Age You: How to Decrease Your Biological Age." *Healthline*, 24 April 2023, <https://www.healthline.com/health-news/stress-can-increase-your-biological-age>. Accessed 18 November 2023.

² "Behavioral and Psychological Factors and Aging | NIA." *National Institute on Aging*, <https://www.nia.nih.gov/about/aging-strategic-directions-research/goal-behavioral-psychological-factors>. Accessed 22 November 2023.

a study wherein they examined whether resilience factors affect stress-associated biological age acceleration. There were 444 participants from the ages of eighteen to fifty, and the sample was self-selected though the researchers did have an exclusion criteria which was if the participants had a substance use disorder, were pregnant, had a chronic medical condition, or were unable to read English at or above the 6th grade. Participants were also excluded if they had a concussion with loss of consciousness greater than 30 minutes, another head injury such as documented traumatic brain injury or another injury with documented lasting deficits, or were using any prescribed medications for any psychiatric or medical disorders.

The participants first met with a research assistant for two intake sessions to complete a physical health review with the Cornell Medical Index, a structured clinical interview for diagnoses (SCID) of DSM-IVTR psychiatric illnesses, a cumulative stress interview, self-report assessments, and a separate morning biochemical evaluation after fasting overnight.

The cumulative stress of the participants was assessed using the Cumulative Adversity Inventory a 140-item multifaceted interview-based assessment of life events and subjective stress through which trained interviewers asked participants about specific stressful events that occurred during their lifetime, which were made up of the subscales of major life events, life trauma events, and recent life events. The participants' sense of overwhelming feelings during these events were also acknowledged during the interview and assessed. The total score was a sum of each of the subscale scores with a higher score indicating a higher overall level of lifetime cumulative stress.

Furthermore, participants' emotion regulation and self-control were also attempted to be measured, along with DNA for biological analysis collected from whole blood samples.

The chronologic age was incorporated into the model as part of the calculation of GAA which was the residual of GrimAge (a weighted linear combination of seven DNAm surrogates of plasma proteins, a DNAm-based estimator of smoking pack-years which is the equivalent of smoking one pack of cigarettes a day for one year, the age, and the sex of a person.) regressed upon chronologic age.

The study results showed that a greater level of cumulative stress as measured by the total Cumulative Adversity Index (CAI) score significantly predicted higher GAA. The researchers concluded that the relationship between stress and biological aging appears to be regulated by psychological factors such as emotion regulation and self-control. They observed that those with better emotion regulation and higher levels of self-control had less age acceleration even at similar levels of stress.³

However, this study has a few possible limitations that could've impacted the results. The first one is that the methodology included taking interviews and order forms of self-reported data by the participants which could've led to order effects that could've impacted the results of the study. Order effects such as the social desirability effect, wherein the participant gives responses that they think might make them look better in front of other people. An interviewer

³ Harvanek, Z.M., et al. "Psychological and biological resilience modulates the effects of stress on epigenetic aging." *Transl Psychiatry*, vol. 11, no. 1, 2021, p. 601. *Nature*, www.nature.com/articles/s41398-021-01735-7.

effect is when the characteristics of the interviewer can impact the results given by the interviewee, which could have also played a part in the results of the study. In addition, the interviews and assessments taken by the participants could've also led to a fatigue effect and impacted their responses in those assessments and interviews. However, despite the possible limitations of this study, it was conducted under highly controlled conditions, giving the results a high internal validity due to the avoidance of confounding variables such as previous brain injuries. Furthermore, the researchers also had a wide range in terms of the ages of the sample chosen for the study, therefore allowing the results to be generalized to a wider population. Overall, this study effectively shows how mental factors can have an impact on the biological age of a person.

Furthermore, according to new research conducted by Julian Mutz, a post-doctoral research associate at King's College London, people with mental illness, or a range of psychiatric conditions such as depression, anxiety, and bipolar disorder have been shown to carry markers in their blood that indicate that their biological age is older than their chronicle age. Mutz and his colleagues researched more than 110,000 blood samples for 168 metabolites including but not limited to cholesterol, fatty acids, and inflammatory markers indicating a person's biological age. The researchers then compared the blood analyses to the records of the patient's age, as well as to baseline questionnaires they answered between 2006 and 2010 regarding their mental health and whether they'd ever been diagnosed with any clinical condition.

The results of the study showed that patients with psychological disorders had a biological age that was older than the person's chronological age. For instance, people with depression had a biological age that was one year older than their chronological age, and for anxiety, it was 0.7 years older. In addition to this, there have also been population studies that show that people with mental health conditions tend to have a shorter life expectancy than the general population. These studies indicate the extent to which psychological factors such as poor mental health can impact a person's biological age and even life expectancy.⁴

A lot of times people don't realize the extent to which mental factors impact our body. We usually tend to think these factors such as anxiety only impact us psychologically, though recent research suggests that they can also have a significant impact on our biological age. This can explain why people with mental health problems tend to have a shorter life span. These recent studies also allow us to see how aging and our mental factors display a correlational relationship, rather than just aging impacting our mental factors, our mental factors impact aging as well.

⁴ *Mental Illness Can Speed Up Aging. But There May Be a Silver Lining.* "Time, Time, 12 August 2021, <https://time.com/6266565/mental-illness-aging-speed-up/>

