Study finds discrimination may accelerate aging

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Discrimination may speed up the biological processes of aging, according to a new study led by researchers at the NYU School of Global Public Health. The research links interpersonal discrimination to

changes at the molecular level, revealing a potential root cause of disparities in aging-related illness and death.

"Experiencing discrimination appears to hasten the process of aging, which may be contributing to disease and early mortality and fueling health disparities," said Adolfo Cuevas, assistant professor in the Department of Social and Behavioral Sciences at NYU's School of Global Public Health and senior author of the study published in the journal *Brain, Behavior, and Immunity-Health*.

Research shows that people who experience discrimination based on their identity (e.g. race, gender, weight, or disability) are at increased risk for a range of health issues, including heart disease, high blood pressure, and depression. While the precise biological factors driving these poor health outcomes are not fully understood, chronic activation of the body's stress response is a likely contributor. Moreover, a growing body of research connects persistent exposure to discrimination to the biological processes of aging.

To better understand the connection between discrimination and aging, Cuevas and his colleagues looked at three measures of DNA methylation, a marker that can be used to assess the biological impacts of stress and the aging process. Blood samples and surveys were collected from nearly 2,000 U.S. adults as part of the Midlife in the United States (MIDUS) study, a longitudinal analysis of health and well-being.

Participants were asked about their experiences with three forms of discrimination: everyday, major, and workplace. Everyday discrimination refers to subtle and minor instances of disrespect in daily life, whereas major discrimination focuses on acute and intense instances of discrimination (for example, being physically threatened by police officers). Discrimination in the workplace includes unjust

practices, stunted professional opportunities, and punishment based on identity.

The researchers found that discrimination was linked to accelerated biological aging, with people who reported more discrimination aging faster biologically compared to those who experienced less discrimination. Everyday and major discrimination were consistently associated with biological aging, while exposure to discrimination in the workplace was also linked to accelerated aging, but its impact was comparatively less severe.

A deeper analysis showed that two health factors—smoking and body mass index—explained roughly half of the association between discrimination and aging, suggesting that other stress responses to discrimination, such as increased cortisol and poor sleep, are contributing to accelerated aging.

"While health behaviors partly explain these disparities, it's likely that a range of processes are at play connecting psychosocial stressors to biological aging," said Cuevas, who is also a core faculty at the Center for Anti-racism, Social Justice, & Public Health at NYU School of Global Public Health.

In addition, the link between discrimination and accelerated biological aging varied by race. Black study participants reported more discrimination and tended to exhibit older biological age and faster biological aging. However, white participants, who reported less discrimination, were more susceptible to the impacts of discrimination when they did experience it, perhaps due to less frequent exposure and fewer coping strategies. (Data on other racial and ethnic groups were not available in the MIDUS study.)

"These findings underscore the importance of addressing all forms of

discrimination to support healthy aging and promote health equity," added Cuevas.

More information: Multi-discrimination exposure and biological aging: Results from the midlife in the United States study, *Brain Behavior & Immunity - Health* (2024). DOI: 10.1016/j.bbih.2024.100774

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