MedicalXpress

Discrimination during adolescence has lasting effect on body

September 9 2015, by Julie Deardorff

In both blacks and whites, everyday feelings of discrimination can mess with the body's levels of the primary stress hormone, cortisol, new research suggests.

In African-Americans, however, the negative effects of perceived discrimination on cortisol are stronger than in whites, according to the study, one of the first to look at the biological response to the cumulative impact of prejudicial treatment.

The team of researchers, led by Northwestern University, also found that the teenage years are a particularly sensitive period to be experiencing discrimination, in terms of the future impact on adult cortisol levels.

"We found cumulative experiences matter and that discrimination mattered more for blacks," said study lead author Emma Adam, a developmental psychologist at Northwestern's School of Education and Social Policy.

"We saw a flattening of cortisol levels for both blacks and whites, but blacks also had an overall drop in levels. The surprise was that this was particularly true for discrimination that happened during adolescence."

The study will be published in the December 2015 issue of the journal *Psychoneuroendocrinology* and is currently available online.

In times of stress, the body releases several hormones, including cortisol.

Ideally, cortisol levels are high in the morning to help energize us for the day. At night, cortisol levels wane as the body prepares for sleep.

Previous research indicates that discrimination can affect the natural rhythm of this process. Work by Adam and others suggests that young adults from racial/ethnic minority groups who perceive more discrimination have higher levels of cortisol in the evening and less decline in cortisol levels across the day than those with lower discrimination.

Having flatter or dysfunctional cortisol levels across the day is linked with higher fatigue, worse mental health, cardiovascular disease and mortality, as well as cognitive problems, such as impaired memory.

The latest study suggests for the first time that the impact of discrimination on cortisol adds up over time. Using data collected over a 20-year period, the researchers showed that the more discrimination people experience throughout adolescence and early adulthood, the more dysfunctional their cortisol rhythms are by age 32.

"We've been trying to solve the mystery behind why African-Americans have flatter diurnal cortisol rhythms than whites," said Adam, a faculty fellow at Northwestern's Institute for Policy Research.

"There's a fair amount of research on how discrimination affects people in the moment. But we haven't been sufficiently considering the wear and tear and accumulation of discrimination over lifetimes. Our study offers the first empirical demonstration that everyday discrimination affects biology in ways that have small but cumulative negative effects over time."

Even after controlling for income, education, depression, times of waking and other health behaviors, they still couldn't explain or remove

the effects of discrimination, "making it unlikely that those other factors play a role," Adam said.

The researchers measured discrimination from ages 12 to 32, prospectively. They also assessed adult cortisol levels over a seven-day period. Using modeling, they determined the age range during which discrimination most dramatically affected cortisol.

"Adolescence might be an important time period because there are a lot of changes in the brain and body," Adam said. "When you experience perceived discrimination during this period of change, it's more likely that those effects are built into the system and have a bigger impact."

More information: *Psychoneuroendocrinology*, www.sciencedirect.com/science/ … ii/S0306453015008914

Provided by Northwestern University