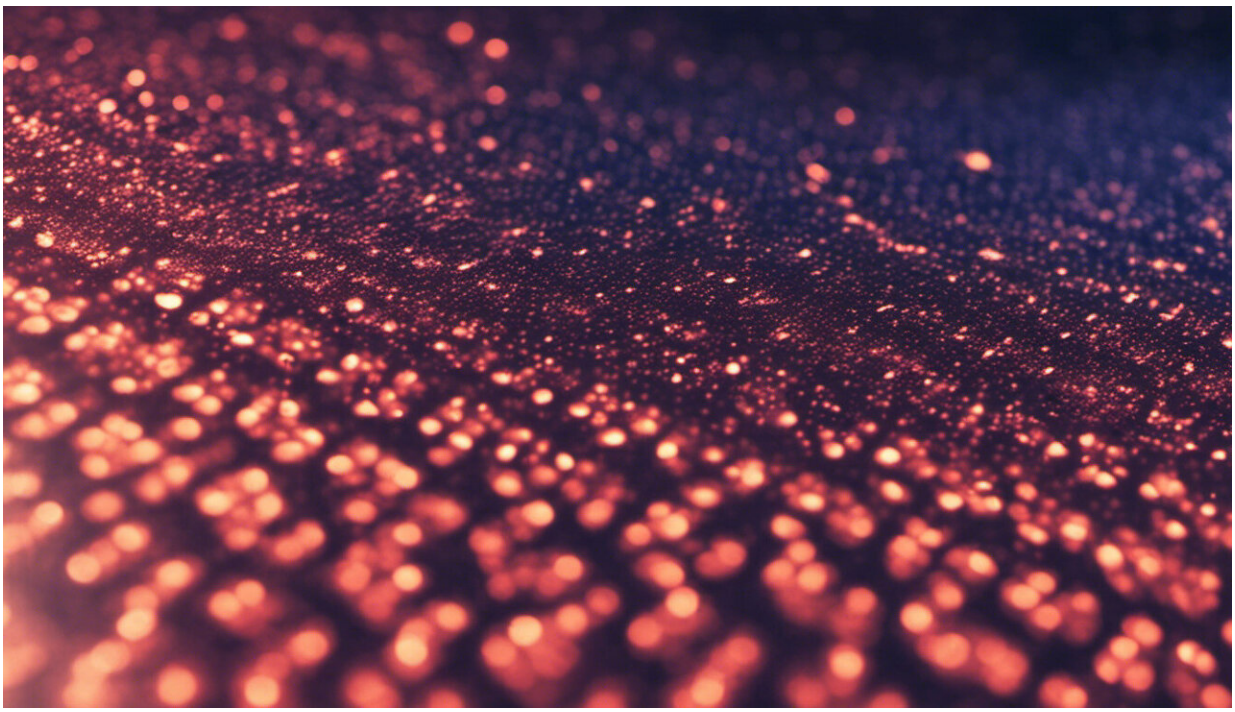
Study: Racism shortens lives and hurts health of blacks by promoting genes that lead to inflammation and illness

October 17 2019, by April Thames



Credit: AI-generated image (disclaimer)

Negative social attitudes, such as racism and discrimination, damage the health of those who are targeted by triggering a cascade of aberrant biological responses, including abnormal gene activity. It is not surprising that reports documenting lifespan and causes of mortality

have demonstrated a clear pattern: African Americans die sooner and bear a heavier burden of many diseases, including hypertension, heart disease, dementia and late-stage breast cancer.

Scientists have searched for genetic causes to health disparities between blacks and whites but have had limited success. The strongest evidence to date points to social-environmental factors such as poverty, health care inequities and racism.

Our society is plagued by racism and racial inequality which is not fully recognized by all, according to a recent study showing that many Americans overestimate our progress in fixing racial inequality. On the other hand, more Americans (65%) are aware that it has become more common for people to express racist or racially insensitive views, according to a U.S. survey.

Racism is not merely negative attitudes or treatment from one person to another. Racism has deep historical roots in American society, sustained through institutional policies and practices, whereby people of color are routinely and systematically treated differently than whites.

As an African American/white individual, I often experienced comments growing up like "You don't sound black," and "What are you?" that made me cringe. In college, I became intrigued by the field of psychology as it was a field that explained how prejudices, stereotyping and racism arise. My research as a clinical psychologist at USC is focused on understanding how societal factors interact with biology to create disparities in health outcomes. A recent study I co-authored showed that racism promotes genes that turn on inflammation, one of the major drivers of disease.

Less overt, but entrenched

Although racism may be less overt today than during the early 20th century, government policies and norms, unfair treatment by social institutions, stereotypes and discriminatory behaviors are sobering reminders that racism is still alive—and contribute to earlier deaths in addition to poorer quality of life.

For example, blacks are more likely than whites to receive drug testing when prescribed long-term opiates even though whites show higher rates of overdose. African Americans have shouldered the burden of racism for decades, creating a level of mistrust for societal systems, be it health care or law enforcement.

Terms such as "driving while black" illustrate how racism and discrimination have been deeply embedded in African American cultural experience. Just imagine trying to buy a home and being turned down because of your race. This is too common of an experience for African Americans. Nearly half (45%) reported experiencing discrimination when trying to find a home and in receiving health care, according to a Robert Wood Johnson survey that was developed by the Harvard T.H. Chan School of Public Health, Robert Wood Johnson Foundation and National Public Radio.

From macro to micro, the effect is widespread

Until recently, we scientists did not know the mechanism linking racism to health. The new study from my lab here at USC and colleagues at UCLA shows that the function of genes may explain this relationship. As it turns out, our study showed that genes that promote inflammation are expressed more often in blacks than in whites. We believe that exposure to racism is why.

We previously showed how activating racism, such as asking people to write down their race before taking an exam, in the form of stereotyping

impairs brain functions such as learning and memory and problem-solving in African Americans. This may partly explain the higher rates of dementia in African Americans compared to whites.

Researchers have well documented that chronic stress alters the function of brain regions, such as the hippocampus, that are targeted in brain diseases such as Alzheimer's disease. This work has been expanded through the field of social genomics, largely pioneered by my colleague Steve Cole at UCLA. A relatively new field called social genomics demonstrates how the function of genes—termed gene expression—is influenced by social conditions.

Genes are programmed to turn off and on in a certain manner. But those patterns of activity can shift depending on environmental exposures.

Certain marginalized groups demonstrate abnormal patterns of gene activity in genes responsible for innate immunity. Innate immunity is how the body fights off and responds to foreign pathogens. Dr. Cole named this pattern/sequence of gene activity the Conserved Transcriptional Response to Adversity. It refers to the how genes controlling innate immunity behave under positive or negative environmental conditions.

When environmental stresses like socioeconomic disadvantage or racism trigger the sympathetic nervous system, which controls our fight-or-flight responses, the behavior of our genes is altered. This leads to complex biochemical events that turn on genes, which may result in poor health outcomes.

The Conserved Transcriptional Response to Adversity profile is characterized by increased activity of genes that play a role in inflammation, and decreased activity of genes involved in protecting the body from viruses.

We found that blacks and whites differed in the pattern of which pro-inflammatory and stress signaling genes were turned on. Our findings are particularly important because chronic inflammation ages the body and causes organ damage.

As my colleagues and I pulled this study together, we took into consideration the health disparities such as socioeconomic status, social stress, and health care access. For example, we recruited African Americans and whites with similar socioeconomic status. We also examined racial differences in reports of other types of stress events. Both groups reported similar levels of social stress.

For this particular study, none of these traditional factors explained why African Americans had greater expression in pro-inflammatory genes than whites. However, we found that experiences with racism and discrimination accounted for more than 50% of the black/white difference in the activity of genes that increase inflammation.

So what do these results mean for future health? I believe racism and discrimination should be treated as a health risk factor—just like smoking. It is toxic to health by damaging the natural defenses our bodies use to fight off infection and disease. Interventions tailored toward reducing racism-associated stress may mitigate some of its adverse effects on health. As a society we cannot afford to perpetuate health inequities by undermining or disguising the biological impact of racism.

Provided by The Conversation