

Stress caused by gap between life goals and achievement linked to rapidly worsening kidney disease among African Americans

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The stress caused by the gap between the pursuit of life goals and their achievement, formally known as goal striving stress, is linked to rapidly worsening kidney disease among African Americans, finds research published online in the ***Journal of Investigative Medicine***.

The greater the level of stress, the higher the risk, the findings indicate.

African Americans have higher rates of kidney disease and are three times more likely to progress to advanced disease, requiring dialysis, than other racial groups, say the researchers. But traditional risk factors, such as cardiovascular disease, high blood pressure, and diabetes only partially explain this discrepancy.

The researchers therefore wanted to find out if stress, which is known to affect various systems in the body, might also contribute to rapidly worsening kidney disease.

They drew on 2630 participants aged 21 to 94 in the Jackson Heart Study, a large long term study tracking the factors potentially involved in the development of cardiovascular disease among African Americans residing in Jackson, Mississippi, starting in 2000-2004.

Goal striving stress was calculated at study entry and defined as the difference between aspiration and achievement, using a 10-point scale, where 1 equals the worst possible way of life and 10 equals the best.

This score was weighted by disappointment experienced if the goal wasn't achieved by the following year, using a 4-point scale, ranging from 'very disappointed' to 'not at all disappointed'.

A final score was derived by subtracting achievement from aspiration, multiplied by the disappointment score. This ranged from 0 to 36, averaging nearly 4. A higher score indicated greater goal striving stress.

The impact of lifetime discrimination was also measured by asking three questions about the levels of stress experienced, the extent to which discrimination had interfered with a full and productive life, and how much harder discrimination had made life. Responses were averaged to create an average 'discrimination burden' score, ranging from 1 to 4, with higher scores indicating a greater toll taken by discrimination.

Participants' overall and kidney health was monitored for an average of 8 years, during which time 193 (7%) participants developed rapidly worsening kidney disease.

Compared with those with a low final score, those with a high final score were more likely to have a higher discrimination score, be younger, female, and college educated. After taking account of potentially influential background and lifestyle factors as well as underlying health conditions, they were 58% more likely to experience a rapid decline in kidney function.

This is an observational study, and therefore can't establish cause. Added to which, other unidentified factors, such as family history or genetic susceptibility to kidney disease, might explain the associations found, say the researchers.

But it's well known that psychological stress increases 'wear and tear' on the major systems of the body, including the autonomic nervous and immune systems, they point out. As to how it might speed up the development of kidney disease is less clear.

But stress might increase sympathetic nervous system activity; alter the hypothalamic-pituitary-adrenal axis, a complex set of interactions and feedback loops between the brain and pituitary and adrenal glands, which regulate the body's response to stress, among other things; or it might prompt changes in the production of inflammatory chemicals, suggest the researchers.

"Given the racial inequalities of wealth, wages, educational attainment, perceived job control and occupational stress, stress from goal striving may disproportionately affect African Americans, write the researchers.

And they conclude: "Researchers and clinicians should continue to explore non-traditional risk factors in an effort to explain and prevent racial disparities in kidney disease."