Retirement associated with lower stress, but only if you were in a top job

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A new paper published in the *Journal of Gerontology* suggests that the period around retirement may widen socio-economic inequalities in stress and health.

Poorer people, or people in low status occupations, often have poorer health and higher biological stress response levels. The socio-economic-health gradient peaks around retirement in the United States and a number of European countries. This widening in health inequalities could be a reflection of the accumulation of socio-economic disadvantages over a lifetime, with early life inequalities in health becoming magnified over the life cycle.

Retirement, however, could potentially moderate this pattern of widening health inequalities if changes in biological stress levels during retirement differ between socioeconomic groups. Higher stress levels associated with lower status work could be mitigated by retirement.

Cortisol is a stress hormone that follows a diurnal profile, peaking around 30 minutes after awakening, and returning to very low levels by bedtime. Stressors disrupt the diurnal profile of cortisol, resulting in elevated levels of cortisol and a flatter diurnal slope from the awakening response to bedtime. Flatter diurnal cortisol slopes are thus a key biomarker associated with higher levels of stress.

Flatter diurnal cortisol slopes are also associated with cardiovascular mortality - a one standard deviation increase in cortisol at bedtime was associated with a doubling of the relative risk of cardiovascular mortality within 6-8 years.

This study investigated whether workers who had recently retired had lower biological stress levels as indicated by steeper (more advantageous) diurnal cortisol slopes compared to those still working in later life.

Data from the London based Whitehall II civil servants study were analysed. 1,143 respondents who were employed with an average age of 60 were measured from five samples collected across the day. Civil

service employment grade was used to categorise people into high, middle or low grades.

Retirement was associated with lower stress levels- those who had recently retired had steeper diurnal slopes compared to those who remained in work. But on further investigation, this apparent benefit of retirement on lowering biological stress response levels was only confined to those in high status jobs. Workers in the lowest status jobs had flatter diurnal cortisol slopes compared to those in the top jobs. And retirement increased, rather than decreased these differences in biological stress levels.

This study has shown that British civil servants employed in the lowest status jobs had the highest levels of stress as indicated by flatter (more adverse) diurnal cortisol slopes compared to those in the highest status jobs. Socio-economic differences in cortisol levels increase, rather than decrease, around the retirement period. These biological differences associated with transitions into retirement for different occupational groups may partly explain the pattern of widening social inequalities in health in early old age.

"It may seem counter-intuitive that stopping low status work which may be stressful does not reduce biological levels of stress, said the study's lead author, Tarani Chandola. "This may be because workers who retire from low status jobs often face financial and other pressures in retirement. This study suggests that people's stress levels are not just determined by immediate circumstances, but by long run factors over the course of their lives.

More information: Tarani Chandola et al, Retirement and Socioeconomic Differences in Diurnal Cortisol: Longitudinal Evidence From a Cohort of British Civil Servants, *The Journals of Gerontology: Series B* (2017). DOI: 10.1093/geronb/gbx058

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