

# Health behaviors may account for substantial portion of social inequality in risk of death

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An analysis of nearly 25 years of data for about 10,000 civil servants in London finds an association between socioeconomic position and risk of death, with much of this relation accounted for by health behaviors such as smoking, alcohol consumption, diet and physical activity, according to a study in the March 24/31 issue of *JAMA*.

The higher prevalence of unhealthy behaviors in lower socioeconomic positions is seen to be one of the mechanisms linking lower socioeconomic position to worse health. "However, major changes have occurred in population lifestyles. These include the decreasing prevalence of smoking and a remarkable increase in [obesity](#) since the 1990s. Given that changes in health behaviors may be socially patterned, previous studies with a single assessment of behaviors may have provided an inaccurate estimation of their contribution to the association between [socioeconomic factors](#) and [mortality](#)," the authors write.

Silvia Stringhini, M.Sc., of the Centre for Research in Epidemiology and Population Health, Villejuif, France and colleagues examined the role of health behaviors in the association between socioeconomic position and mortality. They also compared whether the contribution of health behaviors differs when assessed at only 1 point in time than when assessed through the follow-up period. The British Whitehall II [longitudinal study](#), established in 1985, includes 10,308 civil servants, ages 35 to 55 years, living in London. Analyses were based on 9,590 men and women followed up for mortality until April 30, 2009. Socioeconomic position was derived from civil service employment

grade (high, intermediate, and low) at the beginning of the study. Smoking, [alcohol consumption](#), diet, and physical activity were assessed 4 times during the follow-up period.

A total of 654 participants died during the 24-year follow-up period. The researchers found that in the analyses adjusted for sex and year of birth, those with the lowest socioeconomic position had a 1.6 times higher risk of death from all causes than those with the highest socioeconomic position. Overall, health behaviors assessed at baseline explained 42 percent of the association between socioeconomic position and all-cause mortality; this increased to 72 percent when they were entered as time-dependent covariates (a variable that is possibly predictive of the outcome under study). All health behaviors taken together at baseline explained 29 percent of the gradient for cardiovascular mortality and 45 percent when they were entered as time-dependent covariates. These figures for noncancer and noncardiovascular mortality were 61 percent and 94 percent, respectively.

"The difference between the baseline only and repeated assessments of health behaviors was mostly due to an increased explanatory power of diet, [physical activity](#), and alcohol consumption. The role of smoking, the strongest mediator in these analyses, did not change when using baseline or repeat assessments," the researchers write.

"This study suggests that health behaviors explain a substantial part of social inequalities in mortality and demonstrates the importance of taking into account changes over time in health behaviors when examining their role in social inequalities."

"Our findings may not necessarily have straightforward policy implications. On the one hand, the findings imply that health policies and interventions focusing on individual health behaviors have the potential not only to increase the population's health but also to

substantially reduce inequalities in health. On the other hand, if health behaviors are socially patterned and determined, for example, by financial factors, the capacity to respond to health education messages, or the environment in which they live, the same policies aimed at improving the population's health may contribute to an increase in social inequalities in health," the authors conclude.

**More information:** *JAMA*. 2010;303[12]:1159-1166.

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