

Benefits of healthy lifestyle factors stronger in combination

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It is widely known that a healthy lifestyle that includes not smoking, limiting alcohol intake, and maintaining a proper weight reduces disease risk.

In the journal *PLoS Medicine*, Wei Zheng, M.D., Ph.D., M.P.H., and colleagues at Vanderbilt University Medical Center now report results from a large study quantifying the impact of combining healthy lifestyle factors.

They found that a healthy lifestyle pattern - being normal weight, having low belly fat, participating in regular physical activity, limiting exposure to secondhand cigarette smoke, and consuming higher amounts of fruits and vegetables - reduced mortality in Chinese women who do not smoke cigarettes or drink alcohol regularly.

"The results show that overall lifestyle modification, to include a combination of these health-related lifestyle factors, is important in disease prevention," said Zheng, an Ingram Professor of Cancer Research and director of the Vanderbilt Epidemiology Center.

A number of "unhealthy" lifestyle factors - for example, smoking, excessive alcohol consumption, lack of exercise, diet deficient in fruits and vegetables, high amount of belly fat, and exposure to secondhand tobacco smoke - have been linked individually to chronic disease and premature death.

But little is known about the cumulative impact of these unhealthy factors - or about the combined impact of lifestyle factors beyond that of active smoking and alcohol consumption on mortality.

To address this question, the researchers analyzed data from 71,243 non-smoking, non-drinking Chinese women aged 40 to 70 years who have been participating in the ongoing population-based Shanghai Women's Health Study. Over the 9-year study period, 2,860 deaths were reported, including 1,351 cancer deaths and 775 deaths from cardiovascular disease.

To calculate "healthy lifestyle scores," the investigators selected five well-studied healthy lifestyle factors relevant for this population: normal weight (body mass index 18.5-24.99 kg/m²); lower waist-hip ratio (an estimate of abdominal fat); exercise participation; never exposed to spouse's smoking; and higher fruit and vegetable daily intake.

For each of the five factors, study subjects were assigned one point for having the healthy factor (and zero for not having the healthy factor), and the points were then summed to generate a cumulative score for each woman, ranging from 0 points (least healthy) to 5 points (most healthy).

They found that a higher healthy lifestyle score was significantly associated with reduced risk of mortality from all causes, as well as from cardiovascular diseases and cancer, specifically. Women with 4 to 5 healthy lifestyle factors had 43 percent lower risk of all-cause mortality compared to women with a score of zero. The reduction in mortality associated with higher lifestyle scores was strongest for deaths due to cardiovascular disease.

"We already know that smoking and excessive alcohol drinking have significant adverse health effects. But for the many people who do not

smoke or drink alcohol regularly, these other lifestyle factors may have major combined impact on mortality," Zheng said.

"The good news is that many of these factors can be improved by an individual's motivation to change unhealthy behaviors. And even the more difficult to change factors, like spousal smoking, could be improved by increased awareness about the detrimental health effects of smoking."

More information: Nechuta SJ, Shu X-O, Li H-L, Yang G, Xiang Y-B, et al. (2010) Combined Impact of Lifestyle-Related Factors on Total and Cause-Specific Mortality among Chinese Women: Prospective Cohort Study. *PLoS Med* 7(9): e1000339.
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