Ideal cardiovascular health can help people live longer: Study

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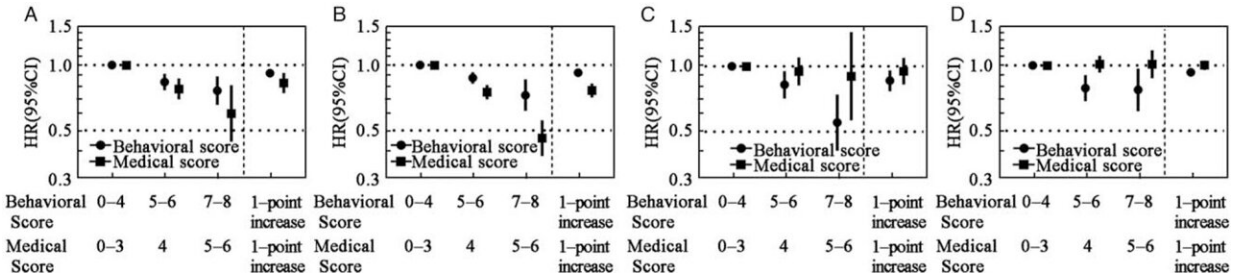

Independent associations of behavioral score and medical score with all-cause (A), cardiovascular disease (B), respiratory disease (C), and cancer mortality (D): pooled results of three prospective cohorts in Chinese adults. The model adjusted for age, gender, region, marital status, education level, income level, occupation, and alcohol drinking, as well as behavioral score and medical score mutually. CI: Confidence interval; HR: Hazard ratio. Credit: *Chinese Medical Journal* (2023). DOI: 10.1097/CM9.0000000000002379

Cardiovascular disease (CVD) is one of the greatest contributors to global deaths. According to the American Heart Association (AHA), ideal cardiovascular health (ICH) is determined by a combination of seven behavioral and medical factors, such as (i) no smoking, (ii) body mass index [BMI] ^{2}, (iii) adequate physical activity, (iv) a balanced diet, (v) total cholesterol

Although these factors have been linked to reduced rates of mortality,

studies in Asian populations have been limited. Moreover, how the behavioral and medical factors interact with each other is also not well understood. As a result, intervention programs for CVD in Asian countries like China have been hampered.

A study published on January 20, 2023 in the *Chinese Medical Journal* sought answers to this predicament. To ensure adequate representation of the Chinese population, the researchers pooled data from three study cohorts encompassing almost 200,000 individuals and examined the association between ICH and death due to different causes.

Corresponding author Dr. An Pan, a Professor of Epidemiology at the School of Public Health, Tongji Medical College, explains, "To prevent premature death, it is imperative to identify population-specific determinants of health. The goal was to examine these factors in a Chinese population and provide an impetus for improving healthcare management in China."

In total, the study included 198,164 Chinese adults from the China Kadoorie Biobank study (2004–2018), Dongfeng-Tongji cohort (2008–2018), and Kailuan study (2006–2019). To remove possible bias, only participants without CVD and cancer at the start of the study were included. Each participant was scored based on their performance on the seven behavioral and medical parameters (poor performance being scores as 0; intermediate performance as 1; and ideal performance as 2).

Accordingly, the highest possible behavioral score was 8, while the highest possible medical score was 6. By adding these scores, a 14-point ICH score was computed. This ICH score was then weighed against death due to any cause (all-cause mortality), CVD, respiratory dysfunction, and cancer.

Through its large sample size and follow-up durations, the study

achieved an overall follow-up period of around 2 million person-years. During this period, compared to those with an ICH score of 0–6, individuals with ICH scores of 10–14 had an approximately 50% lower risk of all-cause, CVD, and respiratory mortality. This suggested that ICH is associated with lower all-cause, CVD, and respiratory mortality among Chinese adults.

Interestingly, although there was no interaction between medical and behavioral factors, higher behavioral and medical scores were both independently associated with lower rates of all-cause and CVD mortality. However, only higher behavioral health scores were associated with lower rates of death due to cancer and respiratory dysfunction.

Shedding light on the importance of these findings, Dr. Shouling Wu of Kailuan Hospital, also a corresponding author on this study, clarifies, "The results of this study are powered by a large sample size, the use of multiple patient cohorts, and the long-term follow-up. They are consistent with the results of previous studies from western populations and provide a much clearer roadmap for premature death prevention in the Chinese population."

Indeed, the findings show that both behavioral and medical health parameters need to be targeted in order to prevent premature deaths in China. Individuals should try to maintain healthy lifestyles and cardiometabolic conditions, and policies that aid this goal should be developed.

While additional studies are needed to validate the association of ICH with non-CVD mortality or mortality due to different subtypes of CVD and to explore unseen interactions between behavioral and medical parameters, this study attests to the power of individual lifestyle behaviors in prolonging one's lifespan and potentially one's quality of life.

More information: Yanbo Zhang et al, Ideal cardiovascular health and mortality: pooled results of three prospective cohorts in Chinese adults, *Chinese Medical Journal* (2023). DOI: 10.1097/CM9.0000000000002379

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