Cardiovascular Health Assessed by Life's Essential 8 in Israeli Adults Aged ≥65 Years and Its Association with Long-Term Cancer Incidence

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Background

- Cardiovascular disease (CVD) and cancer, leading causes of morbidity and mortality in an aging global population, share risk factors and frequently coexist.
- Their relationship remains incompletely understood, particularly regarding the link between cardiovascular health (CVH) and cancer incidence among older adults.

Objective

To examine the association between CVH, assessed using Life's Essential 8 (LE8), a composite measure of health behaviors and cardiometabolic factors, and cancer incidence in a nationwide sample of older adults.

Methods

- A cohort of Israeli adults aged ≥65 from the 2005-2006 National Health and Nutrition Survey.
- Baseline health behaviors and CVD risk factors were used to categorize participants according to LE8.
- Cancer data were obtained from the National Cancer Registry through December 2019.
- Cause-specific Cox proportional hazards models estimated hazard ratios (HRs) for incident cancer, adjusting for sociodemographic variables.

Results

- Among cancer-free participants at baseline [n=1543; mean age (SD), 75 (6) years; 53% women; 39% with pre-existing CVD], LE8 scores ranged from 7-97 [mean (SD), 56 (14)].

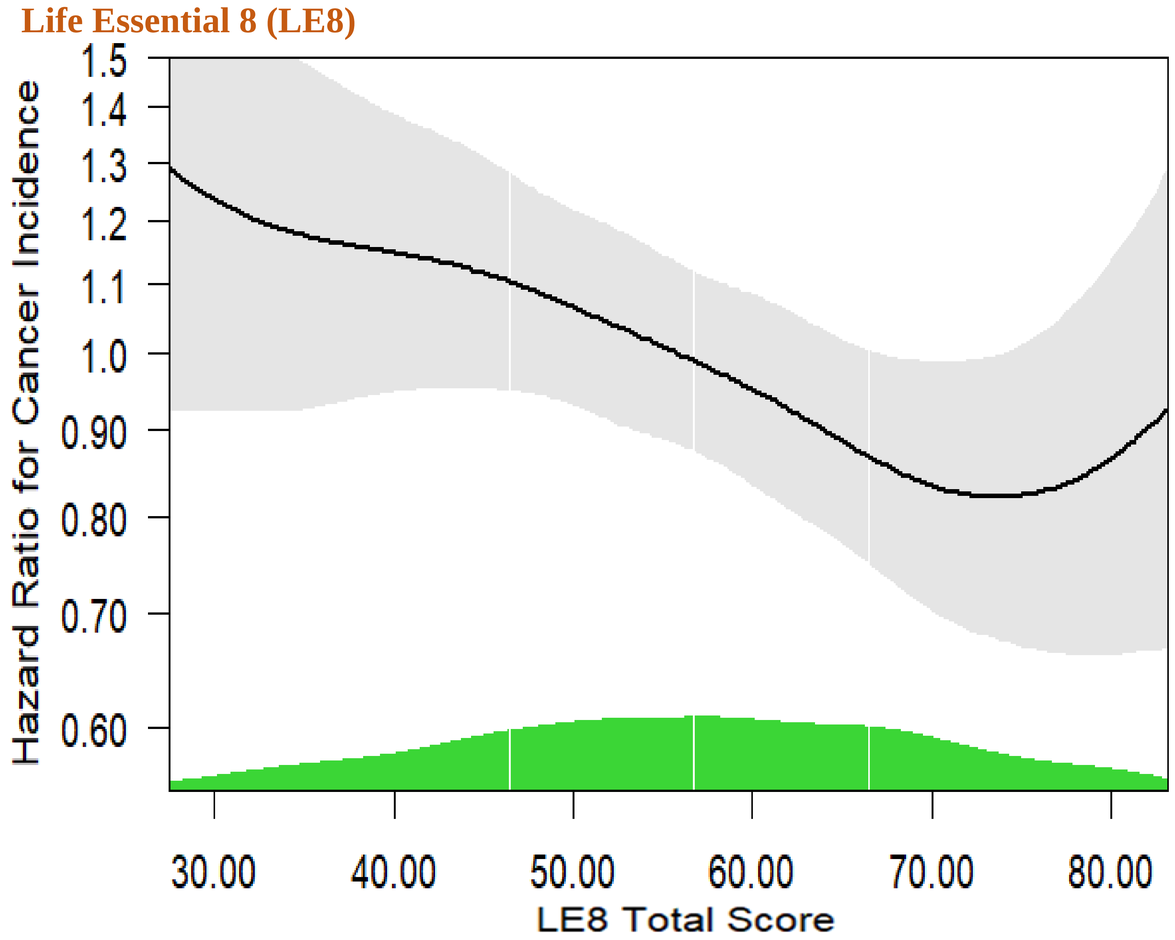
Table 1. Hazard Ratios (95% Confidence Intervals) for Incident Cancer Associated with Life's Essential 8 (LE8)

	Cases/N	Unadjusted	Adjusted*
Entire cohort	345/1543	**0.91** (0.82, 1.01)	**0.88** (0.79, 0.98)
CVD-free	226/936	**0.88** (0.77, 1.00)	**0.84** (0.74, 0.97)
Pre-existing CVD	119/607	**0.97** (0.80, 1.17)	**0.99** (0.81, 1.21)

*Estimates are per 1 standard deviation increase. *Adjusted for age, sex, ethnicity, pre-existing CVD, education, and neighborhood socioeconomic status.*

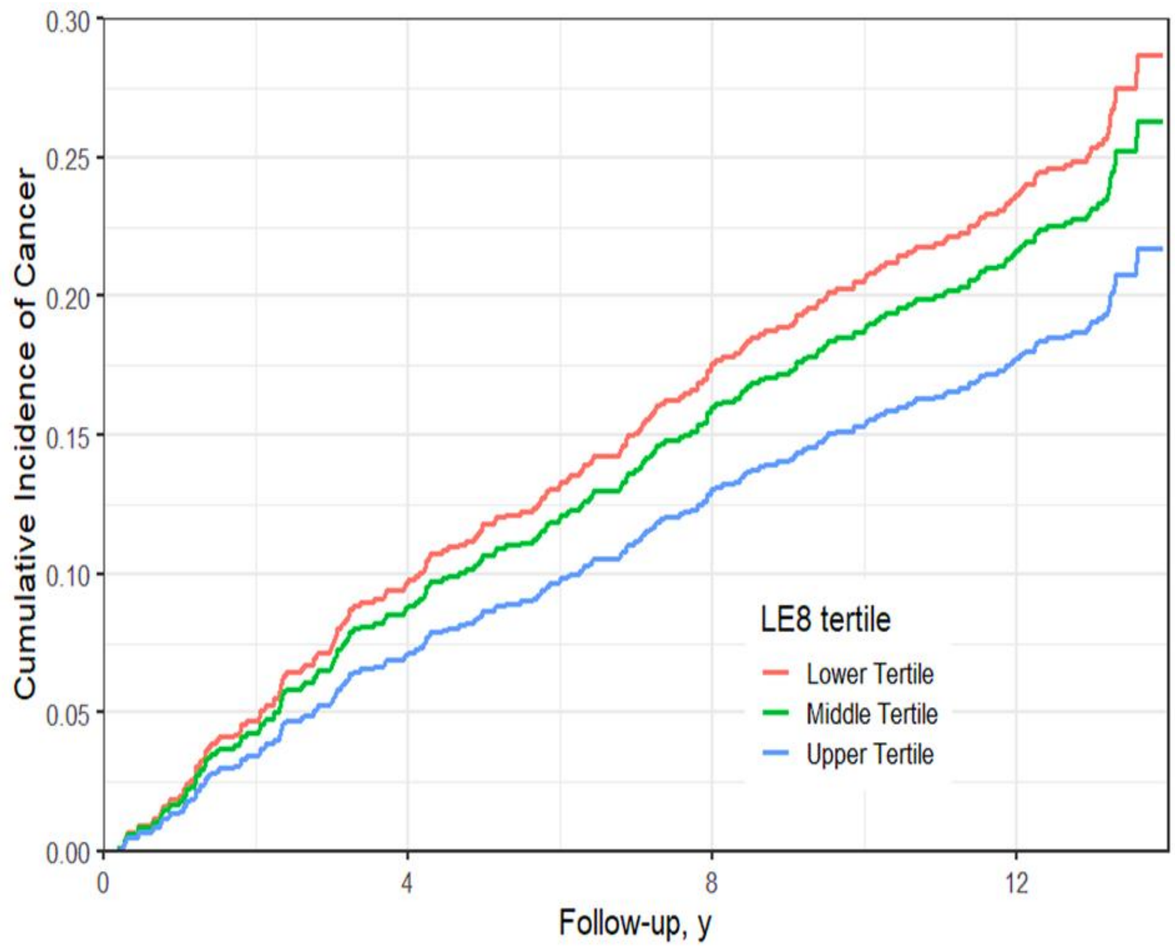
- LE8 scores were positively associated with education and residential socioeconomic status and were lower among men and Arab participants.
- Over a median follow-up of 11.7 years, 345 participants (22%) were diagnosed with all-site cancer.
- LE8 was inversely associated with cancer incidence (table 1).
- The association was evident primarily among CVD-free participants.

Figure 1. Spline-based Hazard Ratios for Incident Cancer Associated with Life Essential 8 (LE8)



The curve is based on a spline-based Cox model, adjusted for age, sex, ethnicity, pre-existing CVD, education, and neighborhood socioeconomic status. The grey area represents a 95% confidence interval. The histogram at the bottom shows the relative distribution of Life's Essential 8 (LE8) scores. The y-axis is presented on a logarithmic scale. ***P values for the LE8-cancer incidence association are 0.027 for linearity and 0.344 for nonlinearity.***

Figure 2. Cumulative Incidence Function (CIF) of Incident Cancer Across Life's Essential 8 (LE8) Tertiles Among CVD-Free Individuals: Covariate-Adjusted Analysis with Death as a Competing Event



Estimates are adjusted for age, sex, ethnicity, education, and neighborhood socioeconomic status; ***p for trend = 0.05***

Conclusions

- **Higher LE8 scores were associated with lower long-term cancer incidence in older adults.**
- **These findings extend the relevance of LE8 beyond CVD prevention and suggest that maintaining favorable CVH in later life may be associated with a lower risk of cancer.**