

Adherence to the Swedish Dietary Guidelines and the Impact on Mortality and Climate in a Population-Based Cohort Study

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Objectives: To assess 1) the association between adherence to the Swedish dietary guidelines and all-cause mortality, and 2) the difference in greenhouse gas emissions (GHGE) from diets of participants with higher and lower adherence to the Swedish dietary guidelines.

Methods: Dietary data from the Swedish population-based cohort Västerbotten Intervention Programme (49,124 women and 47,651 men, 35–65 years at baseline), collected between the years 1990–2016, were used. Diet quality was assessed by the Swedish Healthy Eating Index for Adults 2015 (SHEIA15). SHEIA15 is based on the Swedish dietary guidelines from 2015, and includes assessments of intakes of vegetables and fruits, seafood, whole grains, fiber, monounsaturated fatty acids, polyunsaturated fatty acids, saturated fatty acids, red and processed meat and added sugar. GHGE of diets were estimated from life cycle assessment data, including CO₂e from primary production to industry gate. Information on all-cause mortality was acquired from

registers at the National Board of Health and Welfare in Sweden using personal identification numbers. Hazard ratios (HRs) and 95% confidence intervals (CIs) were estimated using multivariable Cox proportional hazards regression, comparing the lowest and highest quintile of SHEIA15 score. Potential confounders were adjusted for. Difference in GHGE of diets was compared between the lowest and highest quintile of SHEIA15 score, using the Mann Whitney U test.

Results: Median follow-up times were for women 16.0 years and for men 14.7 years, during which time 3074 women and 4212 men died. For women the highest SHEIA15 score was associated with lower mortality compared with the lowest score (HR: 0.87; 95% CI: 0.77, 0.98; $P = 0.027$). No statistically significant difference in HR of mortality was found for the men with the highest SHEIA15 score compared with the lowest score (HR: 0.91; 95% CI: 0.82, 1.01; $P = 0.083$). The participants with the highest score of SHEIA15 had lower dietary GHGE compared to those with the lowest score in both women and men ($P < 0.001$).

Conclusions: Higher adherence to the Swedish dietary guidelines, estimated by SHEIA15, was associated with lower all-cause mortality for women, but not for men, and indicated lower GHGE from diets for both women and men.

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