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Do U.S. adults living in food insecure households experience poorer cardiovascular health?

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Background
- Food insecurity impacts 15.6 million U.S. households.
- Relationships between food insecurity and individual cardiovascular disease (CVD) risk factors range from well-established to inconsistent and understudied:
  - Positive associations with poor glycemic control, tobacco use, and poor diet.
  - Positive associations with unhealthy weight for women.
  - Inconsistent evidence on links with hypertension, dyslipidemia and limited research on physical activity.

Objective
To quantify the extent to which food insecurity is associated with overall cardiovascular health in U.S. adults and to assess gender differences.

Methods
- Cross-sectional study design
- 1,446 National Health and Nutrition Examination Survey participants (2011-2012) met inclusion criteria (>20 years old, not pregnant, without CVD, and complete exposure, outcome and covariate data)

Exposure
- USDA Adult Food Security Module 10-item questionnaire
- Affirmative responses were summed and dichotomized as food secure (<2) or food insecure (≥3)

Outcome
- American Heart Association’s Life’s Simple 7 metric components achieved were summed:

Health Behaviors
- Non-smoking
- Physically active
- Healthy weight
- Healthy diet

Health Factors
- Optimal plasma glucose
- Optimal total cholesterol
- Optimal blood pressure

Analysis
- Linear and logistic regressions to test associations between food insecurity and overall ideal cardiovascular health & individual components. Interaction between food insecurity and gender and ideal cardiovascular health was tested.

Results
- U.S. adults living in food insecure households compared to food secure households were younger (40.9 vs 47.4 years old) and a greater proportion were Non-Hispanic Black (15.9 vs 10.1%), Hispanic (22.0 vs 11.1%), had less than high school diploma (28.4 vs 11.5%), never married (29.2 vs 19.6%), and depressed (17.7 vs 5.1%) (p<0.05)
- 15.8% of U.S. adults live in food insecure households
- No U.S. adults met all ideal cardiovascular health components

Strengths
- Nationally representative sample
- USDA Food Security Module is valid and reliable
- Individual cardiovascular health components (i.e., anthropometrics & labs) may be less biased

Limitations
- Cross-sectional study design
- Measurement error may be present for self-reported indicators
- Potential for unmeasured confounding

Public Health Implications
A better understanding of the relationship between food insecurity and tobacco use is needed to inform effective interventions and policies.