

OP37 **ADIPOSIITY HAS DIFFERING ASSOCIATIONS WITH CORONARY HEART DISEASE INCIDENCE AND MORTALITY IN THE SCOTTISH HEALTH SURVEY COHORT: CROSS SECTIONAL SURVEYS WITH FOLLOW-UP**

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Background Coronary heart disease (CHD) is a major contributor to mortality in the developed world. Investigations involving recent nationally representative surveys, including the Scottish Health Survey Cohort (SHeSC), have not

demonstrated the expected strong U or J shaped association between adiposity and mortality. Given modern treatment and primary/secondary prevention strategies, we question whether adiposity has the same relationship with CHD incidence as it does with mortality?

Objectives To examine the association of adiposity with CHD incidence, CHD mortality and all-cause mortality using body mass index (BMI), waist circumference (WC) and waist-hip ratio (WHR).

Design The SHeSC provides representative population data linked to hospital admission and death records.

Participants 19329 respondents from three survey waves (1995, 1998 and 2003) aged 18–86 years at the time of interview (8532 men, 10797 women) with complete data and no previous admissions for cardiovascular disease (CVD).

Main Outcome Measures CHD incidence (789 first events - admission or death), CHD mortality (212 deaths) and all-cause mortality (1278 deaths).

Methods Gender stratified, multilevel Cox analyses were used to model the relationship between these outcomes and each anthropometric variable (divided into four categories). HR for survival time from interview to event or December 2008, using the second lowest category as referent, were adjusted for age, smoking status, alcohol consumption and survey year; then further adjusted for socio-economic status.

Results The prevalence of obesity, using BMI (≥ 30 kg/m²), WC (men ≥ 102 cm, women ≥ 88 cm) and WHR (men ≥ 1.0 , women ≥ 0.85), was 21.8%, 25.8% and 17.7% respectively. For both genders, the highest category of each anthropometric measure was associated with a similar magnitude of increased risk for CHD incidence. The HR for obese men, using BMI, was 1.66 (95% CI 1.27 to 2.15) while for women the HR = 1.86 (1.39 to 2.50). There was also an increased risk of death from CHD for these categories but it was only significant for women in the highest category of WHR (HR = 2.14; 1.13 to 4.05). For all-cause mortality, only WHR identified an increased risk associated with obesity, HR for men = 1.29 (1.04 to 1.60) and for women = 1.56 (1.26 to 1.93). Adjusting for socio-economic status had minimal impact.

Conclusions The different relationship between adiposity and CHD incidence as opposed to CHD death could be a consequence of effective and timely medical intervention following a CHD event or could be an example of the 'obesity' paradox. Alternatively these indices may predict CHD events but not their severity, except for WHR in women.