

The joint association between education and genetic risk scores for predicting coronary heart disease events: a longitudinal population-based study of 26203 men and women

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Genetic vulnerability to coronary heart disease (CHD) is well established, but little is known whether these effects are mediated or modified by equally well-established social determinants of CHD. We used data derived from the 1992, 1997, 2002, 2007 and 2012 sweeps of the National FINRISK Study, including measures of social, behavioural and metabolic risk factors of CHD as well as genome wide scans (N=26203) with a follow-up for fatal and non-fatal CHD events (N=2063) until the end of 2015. Adjusted for age, sex, study year and region of residence, those who were in the highest quartile of genetic risk score (GRS) of CHD had an increased risk of CHD events (HR=2.55; 95% CI 2.24-2.90); strong associations were also observed for low education (HR=1.80; 95% CI 1.50-2.15). These effects were mainly independent of each other. Individuals with basic or vocational training and high genetic risk scores had particularly high CHD risk.