

Supplemental Table 1. Mortality outcomes in the present analyses

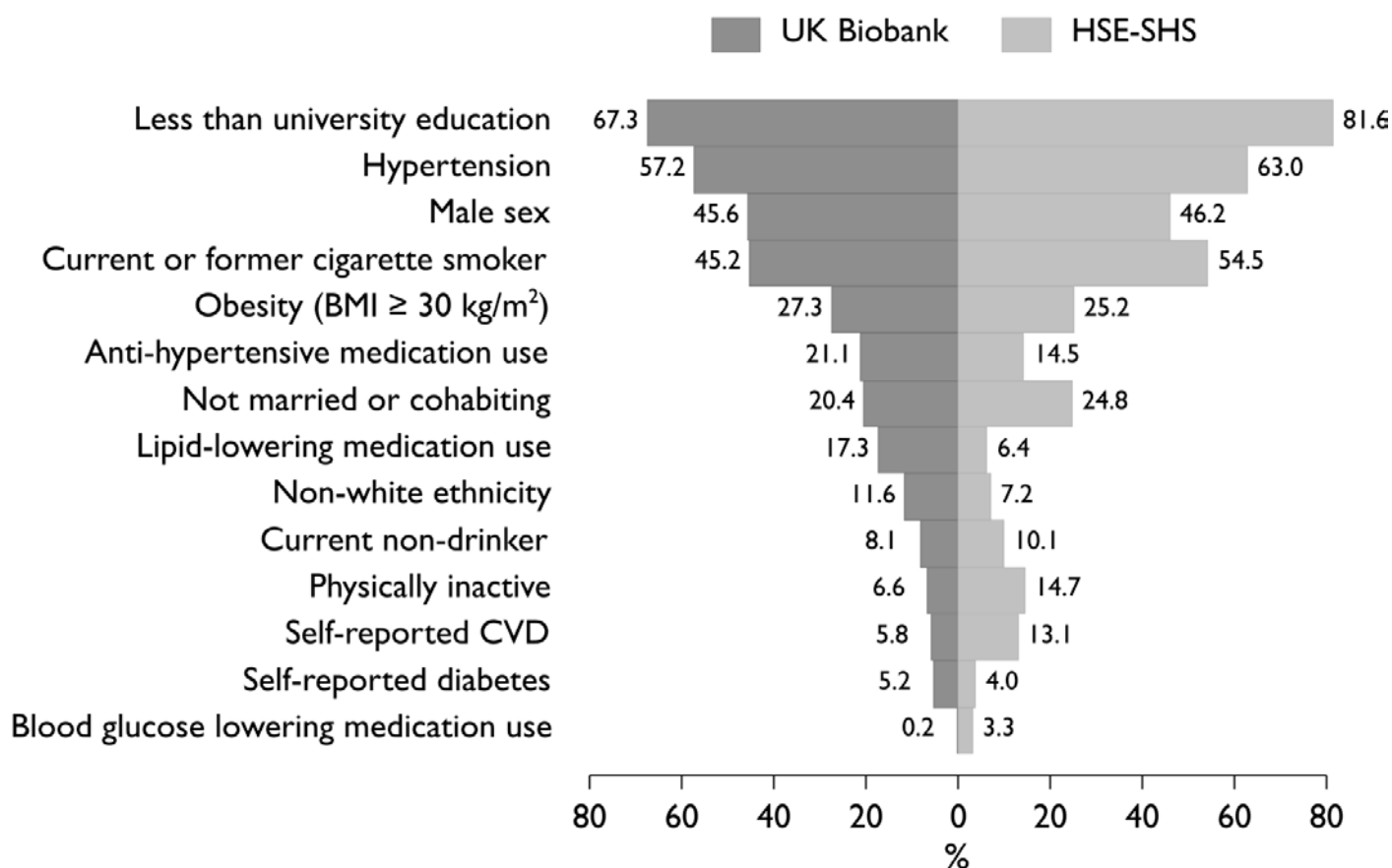
Mortality outcome	ICD 10 codes
All cancers combined	C00-C97
Obesity-attributable cancers ¹	Breast (postmenopausal) C50; Colon C18; Rectum C19-20; Pancreas C25; Endometrium C54; Kidney C64; Ovary C56 & C57.0-4; Multiple myeloma C90; Liver C22; Thyroid C73; Gallbladder C23-24; Oesophageal adenocarcinoma C15 & morphology 8140-8141, 8143-8145, 8190-8231, 8260-8263, 8310,8401, 8480-8490, 8550-8551, 8570-8574, 8576; and Gastric cardia C16.0
Smoking-attributable cancers ^{2,3}	Lip, oral cavity, pharynx C00-C14, oesophagus C15, stomach C16, colon and rectum C18-C20, liver C22, pancreas C25, larynx C32, trachea, lung, bronchus C33-C34, cervix uteri C53, kidney and renal pelvis C64-C65, urinary bladder C67, and acute myeloid leukemia C92.0
Cardiovascular disease	I20-5, I50, I60-70, I73, I74
Suicide ⁴	Suicide and self-inflicted poisoning by solid or liquid substances (E950-E959), injury undetermined whether accidentally or purposely inflicted (E980-E989), terrorism (U03.1 and U03.9), intentional self-harm (X60-X84), event of undetermined intent (Y10-Y34), sequelae of intentional self-harm, assault and events of undetermined intent (Y87), and sequelae of unspecified external cause (Y89.9))
Lung cancer	C34

Supplemental Table 2. Mortality rates in participants in UK Biobank and the HSE-SHS cohort studies

	UKBB	HSE-SHS
Number of adults (women)	502,655 (273,472)	89,895 (48,364)
Duration of mortality surveillance (years, mean [SD])	6.99 (1.03)	9.62 (4.39)
Total number of deaths	14,288	7,861
Mortality rate for cardiovascular disease	64	185
Mortality rate for all cancers combined	236	342
Mortality rate for tobacco-attributable cancers	120	198
Mortality rate for obesity-attributable cancers	94	132
Mortality rate for suicide	6	4

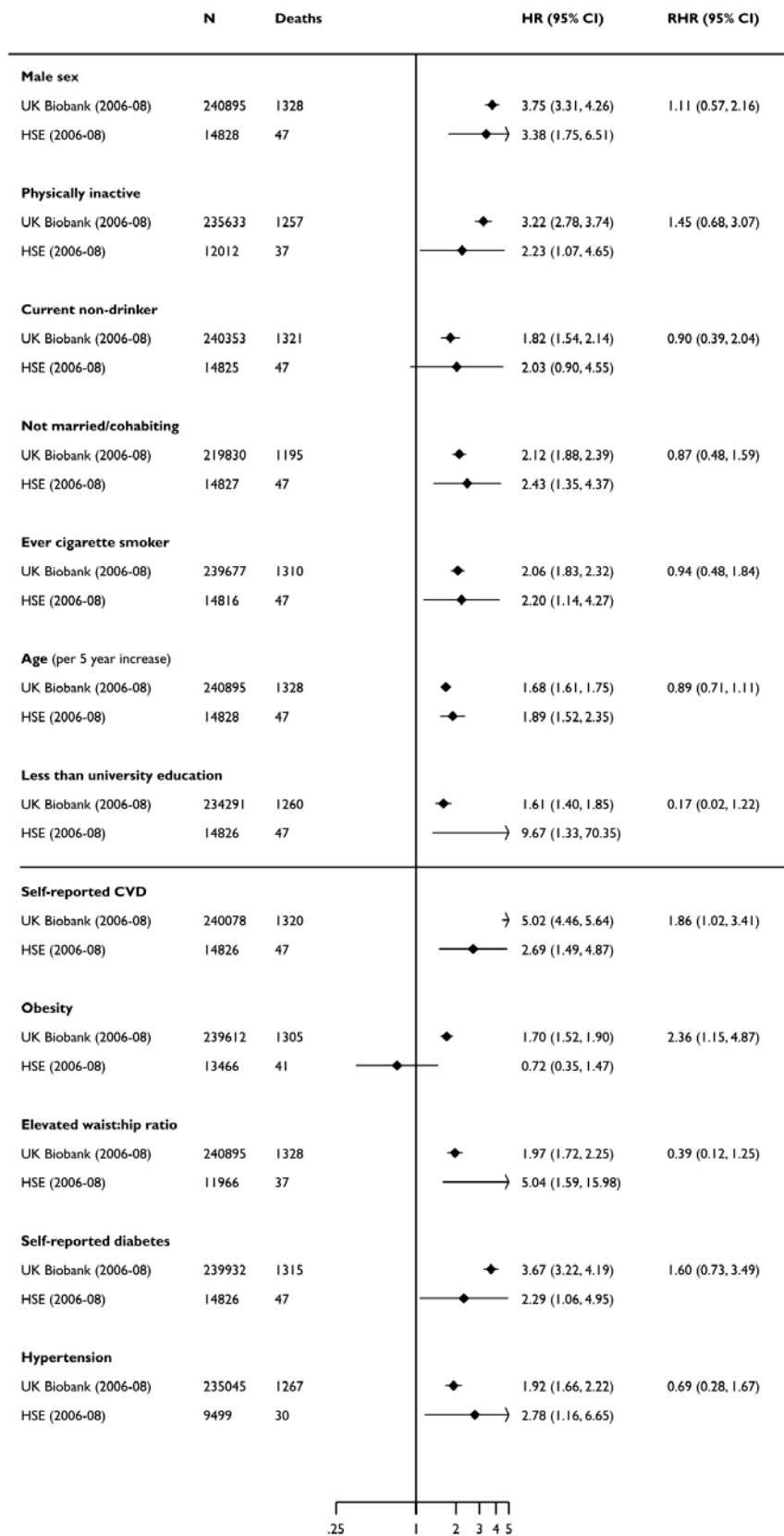
Mortality rates are expressed per 100,000 person-years. SD, standard deviation.

Supplemental Figure 1. Prevalence of baseline characteristics in UK Biobank and the HSE-SHS cohort studies



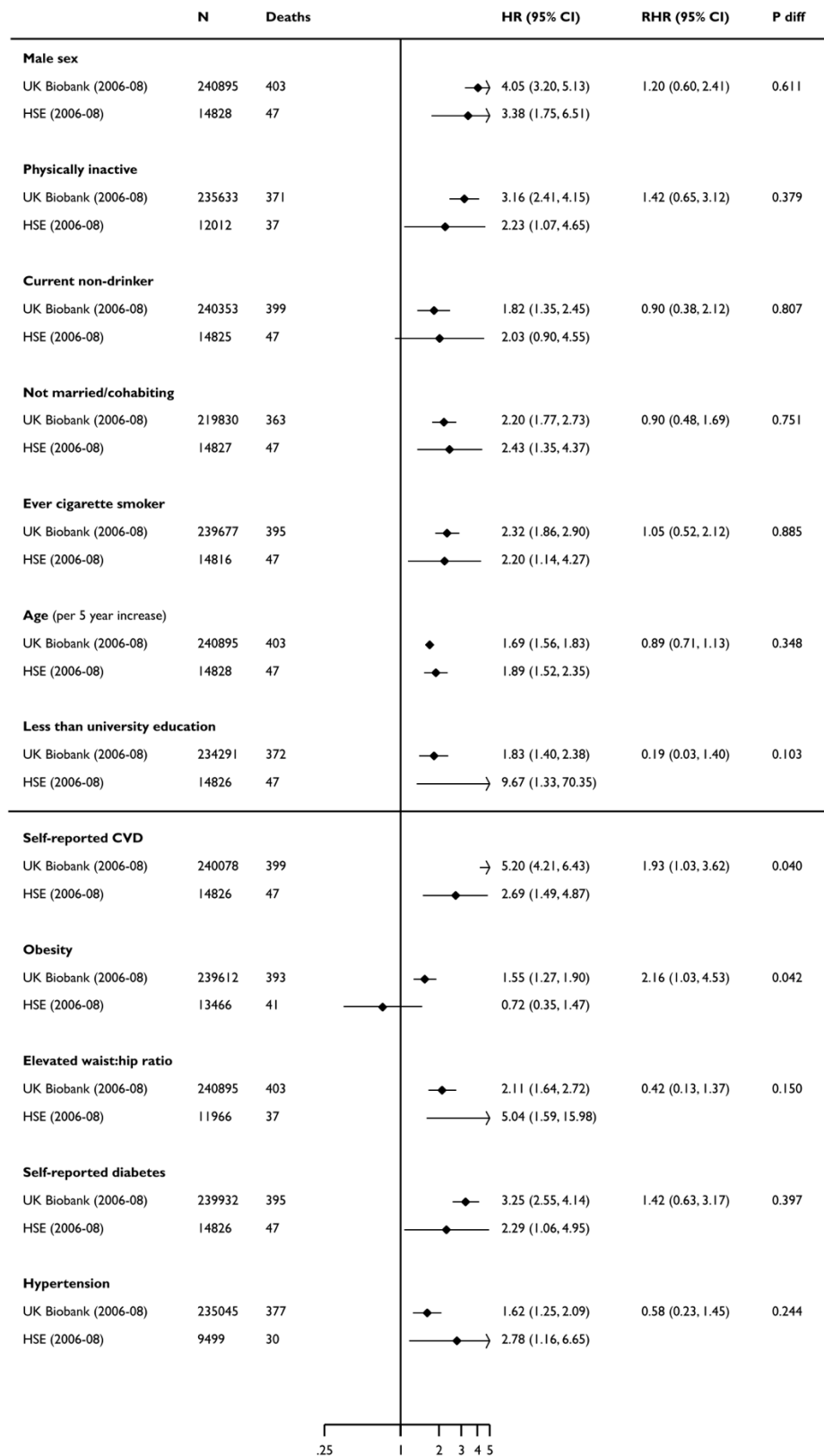
Selected comparisons have been made by Fry and others⁵ using published findings from four HSE studies (2006, 2008, 2009, and 2010). Our analyses are based on analyses of raw data from 18 cohort studies from England and Scotland which include two of those HSE studies (2006, 2008). Analyses comprise 502,655 people in UK Biobank and 89,895 in HSE-SHS. BMI, body mass index; CVD, cardiovascular disease.

Supplemental Figure 2. Association of selected baseline characteristics with cardiovascular disease mortality in UK Biobank and the HSE cohort studies – analyses based on the same baseline survey years (2006-8)



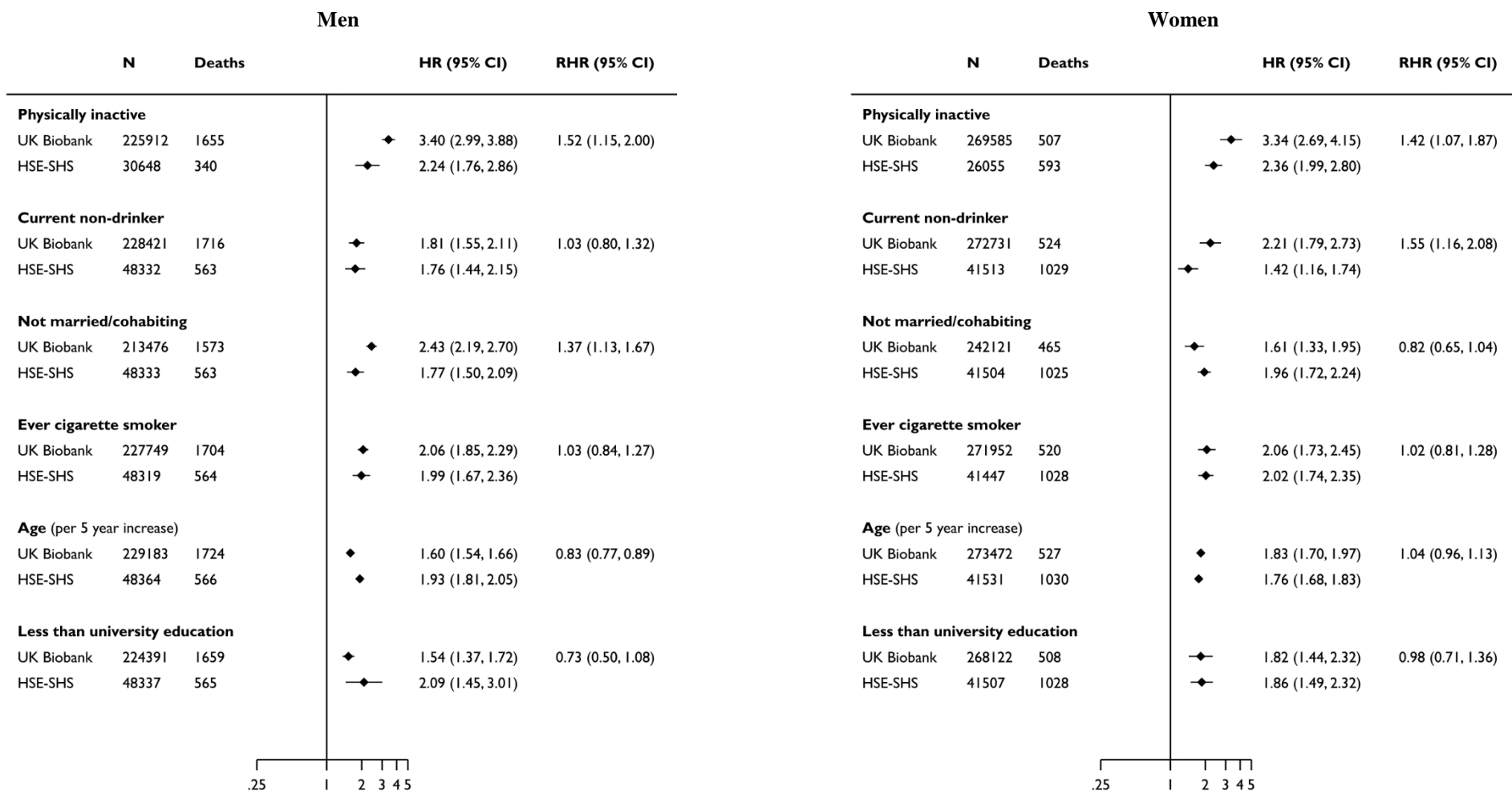
Hazard ratios are age- and sex-adjusted with the exception of age and sex which are mutually adjusted. The shaded diamonds indicate the hazard ratio (HR) and error bars denote the 95% confidence interval (CI) for the relation of each characteristics with the risk of death outcome. The ratio of hazard ratio (RHR) summarises the difference (HSE-SHS is the referent group) between that effect estimates for the outcome. CVD, cardiovascular disease.

Supplemental Figure 3. Association of selected baseline characteristics with cardiovascular disease mortality in UK Biobank and the HSE cohort studies – analyses based on the same baseline survey years (2006-8) and censoring date (February 2011)



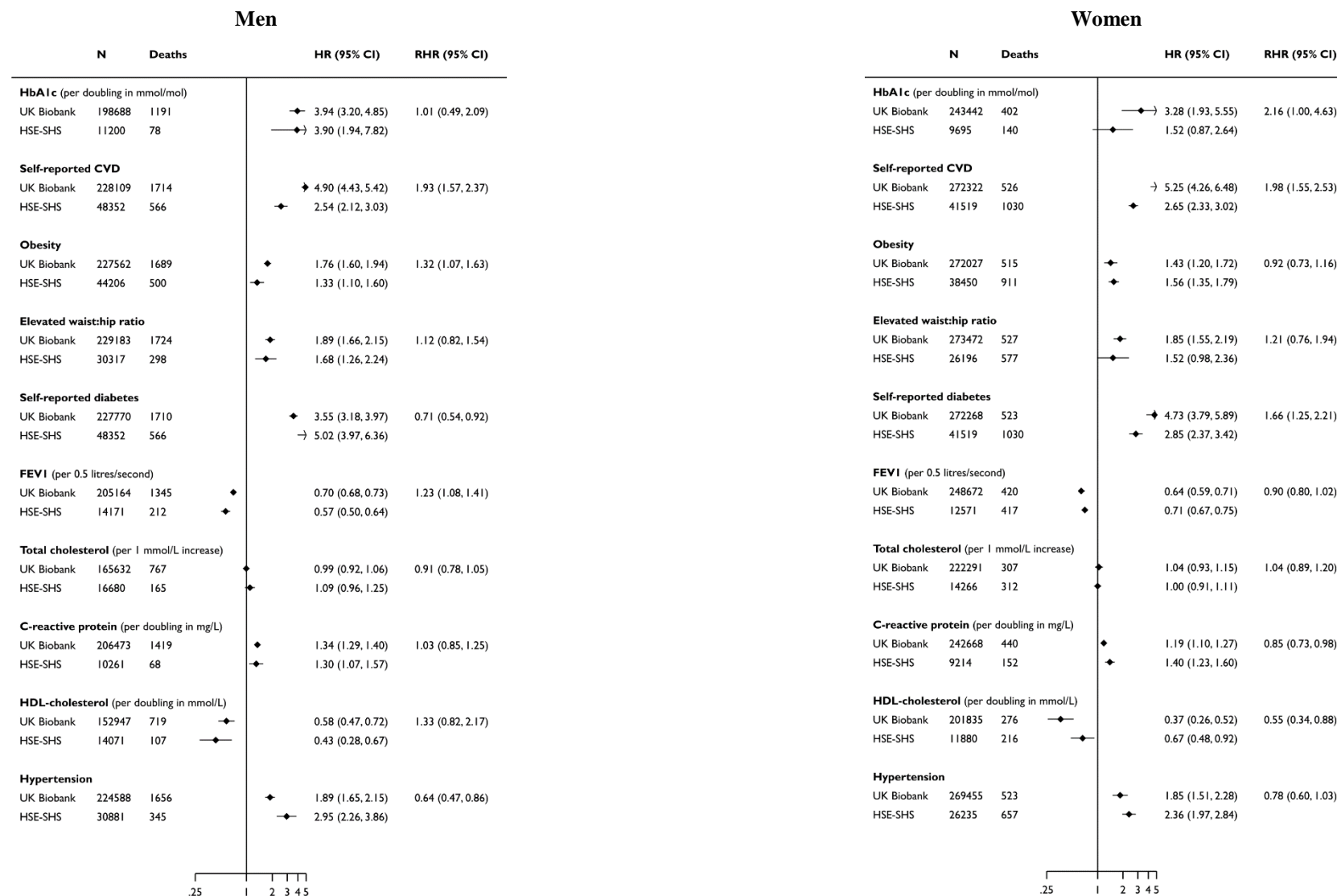
Hazard ratios are age- and sex-adjusted with the exception of age and sex which are mutually adjusted. The shaded diamonds indicate the hazard ratio (HR) and error bars denote the 95% confidence interval (CI) for the relation of each characteristics with the risk of death outcome. The ratio of hazard ratio (RHR) summarises the difference (HSE-SHS is the referent group) between that effect estimates for the outcome. CVD, cardiovascular disease.

Supplemental Figure 4. Association of baseline demographic and behavioural characteristics with cardiovascular disease mortality in UK Biobank and the HSE-SHS cohort studies – stratification by gender



Hazard ratios are age- and sex-adjusted. The shaded diamonds indicate the hazard ratio (HR) and error bars denote the 95% confidence interval (CI) for the relation of each characteristics with the risk of death outcome. The ratio of hazard ratio (RHR) summarises the difference (HSE-SHS is the referent group) between that effect estimates for the outcome.

Supplemental Figure 5. Association of baseline biomedical characteristics with cardiovascular disease mortality in UK Biobank and the HSE-SHS cohort studies – stratification by gender



Hazard ratios are age- and sex-adjusted. The shaded diamonds indicate the hazard ratio (HR) and error bars denote the 95% confidence interval (CI) for the relation of each characteristics with the risk of death outcome. The ratio of hazard ratio (RHR) summarises the difference (HSE-SHS is the referent group) between that effect estimates for the outcome. HbA1c, glycosylated haemoglobin; FEV1, forced expiratory volume in one second; and HDL, high-density lipoprotein.

References

1. Andersson TM, Weiderpass E, Engholm G, et al. Avoidable cancer cases in the Nordic countries - The impact of overweight and obesity. *Eur J Cancer* 2017; **79**: 106-18.
2. US Department of Health Human Services. The health consequences of smoking—50 years of progress: a report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, Centers for Disease ...; 2014.
3. Batty GD, Kivimaki M, Gray L, Davey Smith G, Marmot MG, Shipley MJ. Cigarette smoking and site-specific cancer mortality: testing uncertain associations using extended follow-up of the original Whitehall study. *Ann Oncol* 2008; **19**(5): 996-1002.
4. Batty GD, Kivimaki M, Bell S, et al. Psychosocial characteristics as potential predictors of suicide in adults: an overview of the evidence with new results from prospective cohort studies. *Transl Psychiatry* 2018; **8**(1): 22.
5. Fry A, Littlejohns TJ, Sudlow C, et al. Comparison of Sociodemographic and Health-Related Characteristics of UK Biobank Participants With Those of the General Population. *Am J Epidemiol* 2017; **186**(9): 1026-34.