CVD biomarkers. We conducted a study in Russia to explore the association between levels of heavy alcohol consumption on biomarkers of cardiac damage.

**Methods** The Know Your Heart study recruited and medically examined a random sample of 2354 participants from the general population of Arkhangelsk city (NW Russia) plus 271 participants from the Regional Psychiatric hospital alcohol treatment facility with a primary diagnosis of alcohol problems. Measurements were made of (i) high sensitivity Troponin T (hsTroponinT), a marker of cardiac damage, (ii) N-terminal pro-B-type natriuretic peptide (NT-Pro-BNP), a marker cardiac wall stretch, and (iii) high sensitivity C-reactive protein (hsCRP), a marker of systemic inflammation. Their concentrations were compared between the patients from the alcohol treatment facility and the general population sample divided according to levels of harmful/hazardous drinking. The associations between heavy alcohol use and log-transformed biomarkers were estimated using multivariate linear regression models adjusted for directed acyclic graphs specified minimal sufficient set of confounders: age, sex, smoking and education.

**Results** Those in the alcohol treatment facility had the highest levels of all three biomarkers relative to non-hazardous drinkers in the general population: hsTroponinT was elevated by 10.3% (95%CI: 3.7%, 17.4%), NT-Pro-BNP - by 46.7% (95%CI: 26.8%, 69.8%), hsCRP - by 69.2% (95%CI: 43%, 100%). NT-Pro-BNP was also elevated, but to a smaller degree, for harmful drinkers in the general population – by 31.5% (95%CI: 3.4, 67.2). A trend test across categories of drinkers was significant for NT-Pro-BNP and hsCRP with concentration of biomarkers going up with higher levels of alcohol exposure ($p<0.001$).

**Conclusion** The key finding is that NT-Pro-BNP was raised in both patients in the alcohol treatment facility and among harmful drinkers in the general population. This biomarker of pathological wall stress is a predictor of CVD events. This consistent finding in the two groups supports the hypothesis that heavy alcohol drinking has an adverse effect on cardiac structure and function and may thus lead to increased risk of CVD. However, the importance for CVD of the marked elevation of hsCRP in the alcohol treatment group is less clear.

# Ageing/Older People 1

## OP21 COGNITIVE PERFORMANCE AND HISTORY OF MULTIPLE HEALTH CONDITIONS IN OLDER ADULTS

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**Background** Multimorbidity, defined as the coexistence of two or more health conditions, is becoming the norm in our ageing population. Research to date has highlighted that individuals with multiple health conditions are at greater risk of disability and mortality, but also of cognitive impairment and dementia. Most of research to date on multimorbidity and cognitive performance is cross-sectional or with limited history information of the health conditions. The present study aims to explore the association between cognitive performance and previous history of health conditions over 24 years.

**Methods** The sample consisted of 4858 respondents of the Health Retirement Study (HRS), which is a US nationally representative survey that focus on adults aged 50 and over. Data was extracted from 12 consecutive waves from 1998 to 2014. Data from health conditions included self-reports for hypertension, diabetes, arthritis, stroke, cancer, lung and heart diseases and psychiatric problems. Duration of the health condition was categorized as more than 10 years, between 4 and10 years, less than 4 years and no condition. Cognitive status was assessed using a summary index of cognitive functioning which includes measures of memory, working memory, speed of mental processing, knowledge, and language. ANOVA and post hoc tests were performed to explore the association between cognition and the duration of each health condition independently. Multiple linear regression analyses were performed to explore the association between multiple health conditions and cognitive performance.

**Results** The results showed significant independent associations between cognitive performance in 2014 and each health condition independently, except for cancer [$F(1,4)=2.60$; $p=0.51$]. When all the health conditions were considered together in the regression models, we found that cognitive performance is negatively associated with high blood pressure and stroke (independently of the duration of the condition), long-term diabetes and lung diseases (i.e., for more than 10 years) and recent cancer (i.e., in the last 4 years).

**Conclusion** Our results confirm that cognitive performance is significantly lower in older adults with multiple health conditions. Moreover, our findings highlight that considering the duration of the health condition is key for identifying patients at greater risk of cognitive impairment. Specifically, individuals at greater risk of cognitive impairment are those who have been diagnosed with hypertension or suffered a stroke at any given time, long-term diabetes or lung diseases, and recent cancer diagnoses. Public health makers should develop specific policies for cognitive screening in individuals with these health conditions.

## OP22 SHOULD BALANCE SCREENING FOR FALL RISK BEGIN EARLIER IN LIFE? EVIDENCE FROM A BRITISH COHORT STUDY

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**Background** Falls in older adults precipitate hospitalisation, frailty and premature mortality and are a growing health concern. The standing balance test is a simple, cost effective tool used to screen for fall risk in adults aged 65+, however the association between standing balance and fall risk has not been examined in individuals younger than 65. To assess whether balance tests could be utilised to screen for fall risk at younger ages, we investigated if balance at ages 53 and 60–64 was associated with prevalence and frequency of subsequent falls.

**Methods** Data from the MRC National Survey of Health and Development, a British birth cohort study, were utilised (n=2571). Standing balance time (eyes closed) was assessed at ages 53 and 60–64 (max: 30 seconds). Fall history within the last year was self-reported at ages 60–64 and 68 and categorised to indicate fall prevalence (yes, no) and frequency (0, 1–2, 3+). Binary and multinomial logistic regressions were used to assess associations of balance time (per 1 second increase)

with fall prevalence and frequency, respectively. Adjustments were made for sex, height, BMI, socioeconomic position, physical activity, smoking, knee pain, diabetes, cardiovascular events and respiratory and depressive symptoms.

**Results** Women reported higher prevalence of falls than men at ages 60–64 (23% vs 14%) and 68 (26% vs 18%). Longer balance time at age 53 was associated with reduced odds of falling at age 60–64 [OR: 0.98 (95% CI: 0.97,1.00)]; similar associations were found between balance at age 60–64 and falls at age 68 [0.96 (0.93,0.99)]. Better balance at age 53 was associated with lower risk of 3 or more falls (vs no falls) at ages 60–64 [RRR: 0.88 (0.80,0.98)] and 68 [0.93 (0.88,0.97)]. Better balance at age 60–64 was also associated with lower risk of 3+ falls at age 68 [RRR: 0.92 (0.85,0.98)] and in addition was associated with lower risk of 1–2 falls [0.97 (0.94,1.00)]. These associations remained after adjustments.

**Discussion** Poorer balance at ages 53 and 60–64 was associated with subsequent fall risk. Balance at age 53 was most strongly associated with 3 or more falls, while balance at age 60–64 was associated with both 1–2 and 3+ falls. Whether this is due to stronger associations at age 60–64 or a shorter time between balance and falls assessments requires further investigation. Balance tests in middle age may help identify high risk individuals who would benefit from earlier interventions to prevent future recurrent falls.

## OP23 IS THE INCREASE IN SOCIAL INEQUALITIES IN INFLAMMATION WITH AGE UNDERESTIMATED IN CONVENTIONAL LONGITUDINAL ANALYSES? SOCIOECONOMIC POSITION AND REPEATED SYSTEMIC INFLAMMATION IN OLDER ADULTS LIVING IN ENGLAND

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**Background** Although social inequalities in health are consistently observed across the lifecourse in different populations, there are methodological issues in describing whether these inequalities decrease in later life. The association between socioeconomic adversity and systemic inflammation is well documented in cross-sectional studies, however, the association between living in socioeconomic disadvantage and repeated systemic inflammation in older adults has not been examined in detail, particularly taking into account longitudinal patterns of missingness. Inference from longitudinal analyses of ageing populations is susceptible to biases arising from attrition and non-random dropout. The accumulation of drop-outs over several waves reduce the representativeness of the study population and certain subpopulations can be over or under-represented in the sample.

**Methods** 4,574 men and women aged 52 years and older from the English Longitudinal Study of Ageing (ELSA) wave 2 onwards were analysed. ELSA is a prospective cohort study that is representative of the English population. C - reactive protein levels were measured in waves 2, 4, 6, and 8 (2004–2016). Latent growth curve models estimated the relationship between different measures of socioeconomic position (education, wealth, and social class) and C - reactive protein, compensating for missing data under different assumptions: complete case analysis, full information maximum likelihood, multiple imputation, Diggle-Kenward selection model, and pattern-mixture model. All models were adjusted for gender, age, ethnicity, and marital status.

**Results** At baseline in wave 2, we found differences between the most and least affluent categories of socioeconomic position. Participants with foreign or no qualifications (0.16 log (mg/l), 95% CI 0.09–0.23), participants in the lowest wealth tertile (0.24 log(mg/l), 95% CI 0.16–0.32), and participants in manual occupations (0.13 log(mg/l), 95% CI 0.07–0.19) had increased levels of C-Reactive protein compared to the most advantaged categories of education, wealth, and social class. Although, C - reactive protein levels decreased in later waves, the differences between the most and least socioeconomic advantaged groups remained large. Furthermore, differences between the Diggle-Kenward and other methods for compensating for missing data suggest that the missing completely at random and missing at random analyses underestimated socioeconomic differences in C-Reactive protein.

**Conclusion** This study demonstrates that living in socioeconomic disadvantage is associated with higher C - reactive protein levels over time and that the social discrepancies in health between the most and least affluent socioeconomic groups persist at older ages. It also highlights the importance of compensating for missingness in longitudinal studies with ageing participants who are susceptible to non-random drop out.

## OP24 SOCIAL AND CULTURAL ENGAGEMENT AND DEMENTIA INCIDENCE: COMPARISONS OF DIFFERENT TIME-TO-EVENT ANALYSES USING THE ENGLISH LONGITUDINAL STUDY OF AGEING

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**Background** There is a growing literature drawing on theories of cognitive reserve suggesting that factors relating to social networks, activity and support can predict dementia in older age. Much of this work has focused on social deficits (such as loneliness and isolation), but there is increasing evidence that engaging in social activities can be protective. The aim of this study was to compare the potential protective associations of between three different types of social activity (socialising, community group activities and cultural engagement) and dementia incidence.

**Methods** We used nationally-representative data from 9,550 adults aged 50+ from the English Longitudinal Study of Ageing followed-up over a 12 year period. We determined dementia occurrence using an algorithm that combined self- or informant-reported physician diagnosis of dementia with informant-reported score on the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE). We ran three types of time-to-event analyses: Cox proportional hazards models (modelling time to dementia), competing risk regressions models (modelling time to dementia vs the competing risk of death), and modified Fine and Gray Subdistribution hazards models (modelling time to dementia or death with a high probability of dementia vs the competing risk of death with a low probability of dementia). Analyses controlled for all identified demographic, health-related, and social covariates.