

Background Arterial stiffness is a measure of compliance of the arterial walls to blood flow. It is a marker of cardiovascular fitness and risk of major cardiovascular events. On cross-sectional assessments, higher arterial stiffness is an indicator of poorer scores in objective and subjective measures of physical functioning. Predicting trajectories of physical function using arterial stiffness is a tool use to target individuals at risk of losing their independence. This research aimed to estimate the prospective association between baseline arterial stiffness and change in physical function in a cohort of older people.

Methods Carotid-femoral Pulse Wave Velocity (cf-PWV) is the gold-standard to assess arterial stiffness and it was measured both at baseline (Phase 9, 2008–9) and follow-up (Phase 11, 2011–12) in the cohort using the Sphygmocor[®] Atcor tonometric device. Physical functioning was assessed with objective measures in the Short Physical Performance Battery as well as subjective measures using Medical Outcomes Study Short Form-36, Activities of Daily Living (ADL) and Instrumental ADL scales. Physical status was measured using the Fried frailty phenotype.

Results 4054 participants had a baseline measurement of cf-PWV and measures of change in physical functioning. Mean age at baseline was 65 years (74.8% male). A negative association between baseline arterial stiffness and score in the physical component of the SF-36 questionnaire 5 years later was observed after adjusting for sex, age and ethnicity (-0.21 ; 95%CI: -0.41 , -0.013). There were 1.3 higher odds of incident frailty 5 years later per each additional standard deviation of cf-PWV (95% CI: 1.00, 1.56), although this association was not independent of sex, age and ethnicity.

Conclusion Arterial stiffness was a robust predictor of decline in physical functioning, including Instrumental ADL. This implies potential use of measures of arterial stiffness to identify risk of decline in physical function in older individuals.

P33

LIFE COURSE NEIGHBOURHOOD DEPRIVATION AND FRAILTY IN OLDER ADULTHOOD

¹Gergo Baranyi*, ²Simon Cox, ³Ian Deary, ¹Niamh Shortt, ³Catharine Ward Thompson, ²Miles Welstead, ¹Jamie Pearce. ¹Centre for Research on Environment Society and Health (CRESH), University of Edinburgh, Edinburgh, UK; ²School of Philosophy, Psychology and Language Sciences, University of Edinburgh, Edinburgh, UK; ³OPENspace research centre, University of Edinburgh, Edinburgh, UK

10.1136/jech-2021-SSMabstracts.121

Background Frailty describes a decline in resilience to physical, physiological and emotional stressors, and is linked to increased risk of disability, morbidity and mortality. Neighbourhood features are important risk factors of frailty; however, evidence mainly relies on studies with lack of repeated measurement of neighbourhood. We assessed whether exposure to neighbourhood deprivation across the life course (childhood to late adulthood) was related to the risk and progression of frailty in older age.

Methods Lifetime residential addresses were collected for participants of the Lothian Birth Cohort 1936 at the age of 78. Edinburgh-based addresses were linked to historical measure of neighbourhood deprivation in childhood (1936–1955), early adulthood (1956–1975) and mid-to-late adulthood (1976–2015). Frailty was measured using the Frailty Index in five consecutive waves between the ages of 70 and 82. Linear mixed effects models were fitted for male ($n=161$) and female ($n=162$) participants separately. First, we detected the most

appropriate life course model compared to a saturated model. Second, we adjusted selected models with a set of nested confounders (age, childhood IQ, father's occupational social class, childhood smoking, years of education, adult occupational social class, smoking, living alone). Third, we explored accelerated frailty by imputing the product term of age and neighbourhood deprivation in the selected models. In a sensitivity analysis, we restricted the sample to those with Edinburgh-based addresses in every decades of their life ($n=240$). Analyses were conducted using R.

Results In the male subsample, relaxed accumulation provided the best model fit whereby periods contributed independently to the risk of frailty; preliminary results indicated increased risk of frailty by higher childhood ($b=0.004$; $p=0.041$) and mid-to-late adulthood neighbourhood deprivation ($b=0.005$; $p=0.014$). In the female subsample, mid-to-late adulthood sensitive period was deemed as best fitting with increased risk of frailty in the adjusted model ($b=0.005$; $p=0.014$). Importantly, we identified accelerated frailty among woman in deprived neighbourhoods during mid-to-late adulthood ($p=0.002$). Sensitivity analysis were consistent with the main results.

Conclusion Our study presents the first investigation of life course impact of neighbourhood deprivation on frailty and frailty trajectories; despite the small sample size limiting the generalisability of our findings. Life course models differed across gender and accelerated frailty was only present in the female subgroup. Future research should explore mediating pathways, and potential opportunities to buffer against the detrimental effect of neighbourhood deprivation on frailty. Policy should focus on tackling neighbourhood inequalities throughout the lifecourse to support healthy population ageing.

P34

THE ASSOCIATION BETWEEN SOCIAL ISOLATION AND A NOVEL MEASURE OF INTRINSIC CAPACITY IN THE ENGLISH LONGITUDINAL STUDY OF AGEING (ELSA)

¹Charlotte Campbell*, ¹Paola Zaninotto, ²Dorina Cadar, ¹Anne McMunn. ¹Department of Epidemiology and Public Health, UCL, London, UK; ²Department of Behavioural Science and Health, UCL, London, UK

10.1136/jech-2021-SSMabstracts.122

Background The detrimental impact of social isolation has been reported for several individual outcomes, but less evidence has explored the association between isolation and multi-dimensional measures of healthy ageing. As part of the World Health Organisation's framework for healthy ageing, intrinsic capacity (IC) is defined as an individual's total physical and mental capacities. The use of IC as a measure of healthy ageing is increasing, but longitudinal evidence is still sparse. This study tested the association between social isolation and a novel measure of IC over four waves of the English Longitudinal Study of Ageing in 2,654 adults aged ≥ 60 years.

Methods An IC score was generated in wave 2 (baseline) and three follow-ups (waves 4, 6 and 8/9). Nine indicators were summed into a score (0–9) with higher scores indicating better IC. Indicators and their 'pass' cut-offs were: word recall (top two tertiles), orientation-in-time (all correct), self-report eyesight and hearing (good–excellent), walking speed (≥ 0.8 m/s), grip strength (≥ 30 kg men; ≥ 20 kg women), BMI (≥ 18.5 and <30), CES-D (score <4), Satisfaction With Life Scale (score

≥20). An index of social isolation (0–7), with higher scores meaning greater isolation, was generated at baseline and each follow-up from seven indicators, each worth 1 point: living alone, less than monthly face-to-face or telephone contact with children/family/friends, not being a member of any organisations, not working, not volunteering. The complete-case sample was restricted to those with IC and isolation scores at baseline and no missing data on covariates. Sequential growth curve models included the predictors age and sex, isolation, and then covariate blocks of socioeconomic factors, health behaviours, health; a fully-adjusted model included all predictors and covariates.

Results In the unconditional model, average IC score at baseline was 7.06, decreasing 0.23 units over each follow-up to 6.38 at the final wave. In a model including isolation, age, and sex, higher isolation was associated with lower baseline IC (beta=−0.23, 95% CI=−0.28 — −0.18) but not associated with the rate of change of IC. This effect remained after adjusting for socioeconomic factors, health behaviours and self-rated health.

Conclusion These results suggest social isolation has a detrimental effect on IC level, but not on the rate of decline over time. However, this initial complete-case analysis should be expanded with imputation of missing data and more complex modelling of IC trajectories. Nevertheless, the study highlights the potential of this novel IC model to monitor IC over time and explore factors detrimental to healthy ageing.

P35 PSYCHOLOGICAL FRAILITY AND SOCIAL FRAILITY IN OLDER ADULTS: A SCOPING REVIEW

Mische Mckelvie*, Michael Donnelly, Dermot O'Reilly, Sharon Cruise. *Centre for Public Health, Queen's University Belfast, Belfast, UK*

10.1136/jech-2021-SSMabstracts.123

Background Frailty is increasingly being considered as multidimensional and can encompass physical, cognitive, psychological, and social frailty domains. However, while the physical and cognitive domains of frailty are established within the evidence base, there remains a lack of consensus over the psychological and social aspects of frailty. Therefore, the aims of this scoping review were to establish the extent of focus on psychological and social frailty within the frailty literature; how these domains are conceptualised/operationalised; and how they relate to physical and cognitive frailty.

Methods Using a focused search strategy to limit the scope to psychological and social frailty, one reviewer (MMcK) searched seven databases (CINAHL, EMBASE, MEDLINE, PubMed, Scopus, Web of Science, PsychINFO). Results were screened independently by two reviewers (MMcK, SC), without limits on date or geographic location of publication. Publications were considered eligible if they were focused on the specific domains of this review in community-dwelling individuals aged 50 years and over. Data was extracted using a piloted form and collated into descriptive and narrative synthesis.

Results Of 303 papers screened, 38 were included for full review. The majority of these were exclusively focused on social frailty (53%), whereas only 8% were focused on psychological frailty alone. The remaining 39% considered both domains along with other aspects of multidimensional frailty. Only one study per year was identified prior to 2014, with an exponential increase after this point highlighting the

novelty of this area. Operationalisation of psychological frailty included the co-occurrence of physical frailty and low mood, depression, loneliness, and cognitive impairment. Social frailty was operationalised using a range of social concepts, including but not limited to loneliness, social support, participation, role, relationships, and networks. There was an interchangeability in definitions and measurements between frailty domains, with loneliness being utilised in measuring both psychological and social frailty, and in some cases cognitive frailty was conceptualised as psychological frailty. Both psychological and social frailty were consistently highly associated with adverse outcomes, including disability and mortality. However, the publications differed significantly on whether these associations were independent of or in addition to physical frailty.

Conclusion This review found that amongst the literature on psychological and social frailty there was little consensus on measurement, definitions, or the relationship between different frailty domains. What was evident, however, were the robust associations between negative outcomes and psychological and social frailty, which suggests that they should be afforded the same weight as the physical and cognitive frailty domains.

P36 IS IT GOOD, OR BAD, FOR HEALTH TO STOP WORKING AT OLDER AGES? EVIDENCE FROM THE HEALTH AND EMPLOYMENT AFTER FIFTY (HEAF) STUDY

^{1,2}Georgia Ntani*, ^{1,2}Holly Syddall, ^{1,2}Stefania D'Angelo, ^{1,2}Cathy Linaker, ^{1,2}Martin Stevens, ^{1,2}Karen Walker-Bone. ¹MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, UK; ²MRC Versus Arthritis Centre for Musculoskeletal Health and Work, University of Southampton, Southampton, UK

10.1136/jech-2021-SSMabstracts.124

Aim Generally, good work is good for health but there are few objective data about the effect of permanent exit from work (either through normal retirement, or health-related job exit) on health at older ages. We aimed to explore if exit from the workforce is followed by a change in self-rated health, using longitudinal data from the Health and Employment After Fifty (HEAF) Study.

Methods A cohort of participants aged 50–64 years were recruited from 24 English general practices in 2013–14 and have been followed-up annually by postal questionnaire. At baseline, information was collected about demographic and employment circumstances, physical workload, psychosocial aspects of work and their general health. At each subsequent follow-up, participants self-rated their health and additionally reported whether they were still in paid employment or whether they had exited the workforce, and if so, whether the reason for exit was at least partly due to their health. We used logistic regression modelling to explore the effect of exit from the workforce on changes in self-rated health after adjustment for self-rated health at baseline, before and after controlling for demographic, employment, and socio-demographic factors.

Results HEAF recruited a total of 8,134 people aged 50–64 years at baseline, amongst whom 5,059 were in paid employment and were successfully followed-up. Of these, 3,617 were still working 5 years later, 947 exited work permanently not for health reasons, and 333 exited work permanently at least partly due to their health. Self-rated health remained the same for: 53% of those still in paid employment; 55% of those who exited the workforce not on health grounds; and 47% of those who exited due to their health. Self-rated health