Background Dementia is commonly associated with co-morbidities and non-specific presentations. Individualised dementia care should ideally be provided within the context of these co-morbidities and presentations. To provide systematic insights, we described the dynamic changes of 20 commonest healthcare visits prior to the diagnosis dementia in Taiwan.
Methods We adopted a nested case-control approach. From the Taiwanese healthcare records, which covers >99% of Taiwanese population, we identified 491,000 case individuals first diagnosed to have dementia after age 50 years during 2002–2015, and control individuals matched at 1:1 ratio by age, sex, year of birth, and region at the time of first diagnosis. By 3-digit codes according to the International Classification of Diseases, 9th Edition (ICD-9), we identified 20 commonest causes of healthcare visits in case individuals between 2000 and 2015. Using stratified Poisson regression, we estimated cause-specific rates of healthcare visits between cases and controls within a compatible person-year, and observed the change of relative rates over the 8-year span leading to the diagnosis of dementia. With the large sample size, confidence of intervals of these relative rates for common events were almost negligible.
Results There was gradual increase in average numbers of all-cause healthcare visits prior to the diagnosis of dementia. However, we observed various decline of 15 of 20 cause-specific care prior to the diagnosis of dementia compared to controls, including diabetes mellitus (ICD-9 250), disorders of lipid metabolism (ICD-9 272), cataract (ICD-9 366), disorders of conjunctiva (ICD-9 372), essential hypertension (ICD-9 401), other form of chronic ischaemic heart disease (ICD-9 414), acute nasopharyngitis (ICD-9 460), acute upper respiratory infections of multiple or unspecific sites (ICD-9 465), acute bronchitis and bronchiolitis (ICD-9 466), diseases of hard tissues of teeth (ICD-9 521), and gingival and periodontal diseases (ICD-9 522), gastritis and duodenitis (ICD-9 535), osteo-arthrosis and allied disorders (ICD-9 715), other and unspecified disorders of back (ICD-9 724), and other disorders of soft tissues (ICD-9 729). Four causes of healthcare visits that increased prior to the diagnosis of dementia included neurotic disorders (ICD-9 300), disorders of function of stomach (ICD-9 536) functional digestive disorders, not elsewhere specified (ICD-9 564), and possibly contact dermatitis and other eczema (ICD-9 692). There was little change in hypertensive heart disease (ICD-9 401 prior to the diagnosis of dementia)
Conclusion Paradoxical to the increase in all-cause healthcare visits prior to the diagnosis of dementia, there was decline of commonest care prior to the diagnosis of dementia. The few increasing exceptions could be common presentations prior to the diagnosis of dementia. These time-dependent findings provide systematic insights into dementia care and diagnosis.

P30 TREND IN DEMENTIA INCIDENCE IN CHINA 2002–2014: POPULATION-BASED LONGITUDINAL STUDY

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Background Globally, some 50 million people had Alzheimer's disease and related dementias in 2018. China accounts for approximately a quarter of cases. It is estimated that the cost of dementia in China was approximately USD 50 billion in 2010. China's rapid ageing process is occurring at an earlier stage of economic development than other countries, posing great demands on society, particularly health and care services. Accurate estimation of the recent time trend in the incidence of dementia in China is critical for tackling future challenges and formulating public health policies. There is evidence from several high-income countries of a recent downward trend in dementia incidence rates. It is currently unclear, in view of its less-developed status, whether the time trend is also downward in China. The aim of this study is to estimate the recent time trend in dementia incidence in China and to explore how much the effect of changes in risk factors on this trend.
Methods The Chinese Longitudinal Healthy Longevity Study (CLHLS) provides five waves of data (2002–2014). CLHLS wave 3 to wave 8 provided information about health status and quality of life of 47,584 people aged over 60 years in 23 provinces, municipalities and autonomous regions of China. In order to maintain representativeness, refreshment participants were recruited to study periodically. Dementia was ascertained at each wave using standardized cognitive and functional impairment criteria. Competing risks of mortality and non-random dropout were accounted for in analysing the temporal trend in dementia incidence. Joint model was fitted to estimate the temporal trends in dementia incidence in China. R package JM was employed to fitted the joint model.
Results Age-sex adjusted dementia incidence (2002–2014) increased at an annual rate of 2.5% (95% CI 2.4%-2.6%). Changes in potential risk factors accounted for about 20% of the time effect in dementia incidence.
Conclusion Time trends in dementia incidence in China was upward recently. To our knowledge, this is the first study to estimate the trend in dementia incidence in a middle-income country. This longitudinal study used joint modelling with time-to-event data to explore the time trends in dementia incidence for 12 years in China. The first limitation of this study was not possess data from eight provinces in remote areas in China. The second potential limitation is caused by the recall bias and measurements bias over time. The third limitation is that we assumed a constant rate of change of the dementia incidence rate which based on the rate of change was uniform across the Chinese population, but the population structure changed between 2002 to 2014.

P31 ABSTRACT WITHDRAWN

P32 AORTIC STIFFNESS AS A RISK FACTOR FOR DECLINE IN PHYSICAL FUNCTIONING IN THE WHITEHALL II STUDY

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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 Sphygmacor ® 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

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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)

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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 (≥0.8m/s), grip strength (≥30kg men; ≥20kg women), BMI (≥18.5 and <30), CES-D (score <4), Satisfaction With Life Scale (score