

level before dinner ($p < 0.05$, respectively). On the PNAB and PGAB, severe depression ($p < 0.05$, respectively) and high activity ($p < 0.05$, respectively) showed great influences. These findings suggest that developing of intervention of BPSD must be started with detecting depression, ADL. Considering the factors of each type of symptom, tailoring an individual approach is recommended. In addition, this study identified that the activity through actigraphy and salivary melatonin measurement are useful tools to examine BPSD. It can be helpful in the objective evaluation of BPSD.

RETIREMENT TIMING AND POST-RETIREMENT HEALTH: QUASI-EXPERIMENTAL EVIDENCE FROM DENMARK

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A growing concern among policy makers in the European welfare states is that the proportion of the population in the working age has decreased over the last decades. In response to these demographic trends, many European countries have introduced reforms that roll back welfare policies that enables early retirement in order to sustain the current standards of living. However, scholars have voiced the concern that reforms which prevent early retirement could cause a rise in health inequality in old age because some people are not able to extend their working life. There are two contradictory views on post-retirement health. Retirement can either be seen as a kind of identity crisis, leading to less motivation to maintain health or retirement can be seen as a health preserving transition, enabling individuals to relieve stress and be more aware of their health. So far, empirical evidence on the effect of retirement timing on post-retirement health is inconclusive about the causal nature of this relationship. To estimate the causal effect of retirement timing on post-retirement health, this paper uses month of birth variation in incentives to postpone early retirement in the cohort born in 1939 that was created by a reform of the Danish retirement legislation, which the government introduced in 1999. The results suggest that people who retire at the age of 60 have more adverse health outcomes in old age than people who retire later, but this difference does not appear to be caused by differences in retirement timing.

HEALTHY AGEING FOR ALL? SOCIOECONOMIC CHANGES OVER TIME IN DISABILITY-FREE AND INDEPENDENT LIFE EXPECTANCIES

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Background: Previous research using cross-sectional data shows widening inequalities in disability-free life expectancy (DFLE) by socioeconomic status (SES) in the UK. We aimed to understand the underlying transitions of DFLE and years dependency free (DepFLE) using longitudinal data from the Cognitive Function and Ageing Studies (CFAS I and CFAS II). Methods: Two large population based studies of those aged 65+ in three centres (Newcastle, Nottingham, Cambridgeshire) interviewed at baseline in 1991 (CFAS I) and 2011 (CFAS II) with follow up two years later. Disability was measured using difficulty in activities of daily living

(ADL), and dependency by time between help required for ADLs. SES was based on area deprivation categorised into study specific tertiles. Transitions between disability or dependency states and death were modelled using Interpolated Markov Chain software. Results: Between 1991 and 2011, DFLE and disabled life expectancy (DLE) at age 65 increased for men in every SES group, with men being less likely to become disabled or die, and more likely to recover, in 2011 than 1991 across SES groups. For the most disadvantaged women, DFLE was similar, and DLE increased, whilst for the remaining women DFLE increased and DLE was similar. For women probability of recovery increased and probability of death from disability decreased but probability of becoming disabled decreased only for the most advantaged. DepFLE patterns across time were similar but more pronounced. Conclusion: Preventive measures should focus on reducing the disability and dependency onset in the most disadvantaged to ensure inequalities do not widen further.

CEREBRAL ATROPHY CORRESPONDING TO TOOTH LOSS IN ELDERLY INDIVIDUALS

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Recent advances in the aging of Japanese society, have meant that the chance of encountering dementia patients in dental clinics is dramatically increasing. Many studies have shown that the brain volume decreases along with the progression of dementia. Although previous studies have reported a relationship between tooth loss or periodontitis and the onset of dementia, the pathological mechanisms underlying this association have not been elucidated. In this study, we focused on the relationship between the oral condition and brain atrophy to discuss how to adequately deal with dementia patients. This study included fifteen participants who underwent brain MRI (magnetic resonance imaging). We obtained information on the oral condition, lifestyle, cognitive function and brain atrophy. The cognitive function was assessed using the Mini-Mental State Examination (MMSE). MR images of each patient were analyzed with the Voxel-based Specific Regional Analysis System for Alzheimer's Disease to quantitate the degree of brain atrophy. The study population included 4 male and 11 female patients. The mean age was 75.9 years. The mean number of present teeth was 15.0. The median MMSE score was 26. The degree of atrophy of the whole brain was significantly correlated with the number of present teeth ($r = -0.72$, $p < 0.05$) and the presence of a daily exercise habit ($r = -0.66$, $p < 0.05$). This study showed that the number of present teeth could be an indicator reflecting the progress of dementia. Preserving the teeth as well as the acquisition of a regular exercise habit might be important for preventing dementia.

HEALTHCARE ACCESS AND SOCIAL ENGAGEMENT OF OLDER MINORITY ADULTS: EXPERIENCES NAVIGATING TRANSPORTATION BARRIERS

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Transportation is vital in the daily lives of older adults and provides access to health care services and health enhancing activities, such as social engagement. Disparities in mobility exist for older African American and Hispanic adults compared to non-Hispanic Whites, including higher likelihood of driving cessation at an earlier age and having a higher risk for reduced life space. This poster presents findings from a qualitative analysis of data from the Using Geo-Ethnography to Explore the Spatial Accessibility of Health Services for Aging Minorities Study (GeoSAS), a mixed methods study of older minority adults in Houston, TX. Using interpretive phenomenological analysis, the transcripts of semistructured interviews with 23 older adults (13 African American and 10 Hispanic; 17 female; mean age = 71.3 yrs, SD = 6.3 years) were analyzed to address the research question: What are the mobility experiences and perceptions of minority older adults regarding healthcare access and social engagement? Based on an ecological systems theoretical framework, we found reciprocal influences of (1) healthcare systems and transportation utilization and (2) participants' health and well-being, mobility, and social engagement. Support from family members and financial capacity were critical for participants' mobility. Implications of this research include educating health care providers about patients' transportation experiences and barriers, optimizing social support to increase mobility, and addressing systematic disparities in transportation access to enhance health and well-being for older minority adults.

VALIDATING SILICONE WRISTBANDS TO MEASURE PESTICIDE EXPOSURES AMONG OLDER ADULTS -- PROOF-OF-CONCEPT STUDY

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Silicone wristbands have been used to measure exposure to pesticides and other chemicals among children and younger farm workers, but not in older adults. Thus, we aimed to examine exposure to pesticides using silicone wristbands in a small cohort of older adults living on agricultural land, with variable contact with fields and pesticides. We also investigated correlations between pesticide levels on wristbands and urinary pesticide metabolites. Organophosphate (OPH) pesticides and several organochlorines were measured in wristbands worn by 15 males age 70+ (10 farmers using pesticides and 5 non-farmers with no recent pesticide use). Wristbands were worn continuously for 5-days. End-of-day urine samples were collected on days 1-3-5. Spearman correlations and Wilcoxon Scores were calculated. Five pesticides were quantified in the wristbands and detection frequencies ranged from 40-90%. In urine, 12 OPH metabolites were quantified, but only 5 were detected in >50% of the samples. None of 5 urinary herbicides were detected. Imputation was performed by dividing minimum-detect by square-root-2.

Malathion was only detected in farmers compared to non-farmers. Correlations between OPH urinary metabolites and wristband were examined but only two were significant and were negative in direction. Notably, organochlorine DDE on the wristbands was significantly correlated with 3 OPH metabolites. These unexpected relationships, based on small numbers, suggest a need to replicate this work in a larger study sample to explore potential for confounding or mixtures in future studies of pesticides and health in older farmers.

MACHINE LEARNING ANALYSIS OF MOUSE FRAILTY FOR PREDICTION OF BIOLOGICAL AGE AND LIFE EXPECTANCY

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In mammals, the lack of accurate biomarkers for biological age is a current limitation to identifying novel aging interventions. Molecular biomarkers including DNA methylation hold promise but are invasive and currently expensive. The Frailty Index (FI) quantifies the accumulation of health-related deficits and is fast, cheap, and non-invasive. Studies have demonstrated that FI correlates with age and mortality risk in mice and humans. However, the FI has not been modelled to directly predict biological age or life expectancy. We tracked aging male C57BL/6 mice until their natural deaths, scoring them longitudinally with the FI. We find that FI score correlates with and is predictive of age and that some but not all parameters of the FI are individually well-correlated with age. To better predict chronological age, we performed an elastic net regression on the FI termed FRIGHT (Frailty Inferred Geriatric Health Timeline) Age. FRIGHT Age is a strong predictor of age ($r^2=0.73$, median error=47.5 days), but is not superior to chronological age at predicting life expectancy. To better predict mortality, we built a random forest model termed the AFRAID (Analysis of Frailty and Death) score, which predicted survival at multiple ages ($r^2=0.375$, median error = 46.4 days). The FRIGHT and AFRAID models were responsive to chronic treatment with enalapril (30mg/kg/day), an angiotensin converting enzyme inhibitor that extends healthspan, and methionine restriction, a dietary intervention that extends healthspan and lifespan. Our findings underscore the value of assessing non-invasive biomarkers for aging research and may help speed the identification of aging interventions.

WHITE MATTER INTEGRITY UNDERLYING SUBSYNDROMAL DEPRESSION SYMPTOMS IN DEMENTIA CAREGIVERS

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