

Ageing

Strand organiser: Giorgio di Gessa (UCL)

13:30 - 15:00 Monday 9 September: Ageing 1 - Cognition in later life

Joint associations of physical activity and sleep with transitions to cognitive impairment and dementia in older adults

Mikaela Bloomberg, Laura Brocklebank, Jessica Gong, Andrew Steptoe - University College London

Background

Physical activity (PA) and sleep are key related behaviours thought to shape cognitive health. How combinations of PA and sleep habits influence transitions from cognitive health to cognitive impairment and dementia in older adults has not been examined.

Methods

Data were drawn from seven waves (2008-2018) of the English Longitudinal Study of Ageing (N=9,451; ages 50-106 years). PA (high [more-than-weekly moderate-vigorous physical activity]; low) and sleep duration (short [<6 hours]; optimal [6-8 hours]; long [>8 hours]) were assessed in 2008. Multistate models (adjusted for age, sex, education, chronic conditions, and health behaviours) were used to examine associations of combined PA and sleep with transitions from cognitive health to cognitive-impairment-no-dementia (CIND) and dementia over 10 years of follow-up, with death as an absorbing state.

Results

The overall incidence rates of CIND and dementia were 3.3 (95% confidence interval=3.2-3.4) and 0.9 (0.8-0.9) per hundred person-years respectively. Compared with high PA/optimal sleep, all PA/sleep categories except high PA/short sleep were more likely to transition from cognitively healthy to CIND, with hazard ratios [HRs] ranging from 1.15 (0.87-1.52) for high PA/short sleep to 2.12 (1.54-2.93) for low PA/long sleep. All PA/sleep categories were more likely than high PA/optimal sleep to transition from CIND to dementia. HRs ranged from 1.54 (1.28-1.88) for low PA/optimal sleep to 1.94 (1.46-2.58) for low PA/short sleep.

Conclusion

High PA without optimal sleep duration was insufficient to reduce the risk of transitioning to less healthy cognitive states. Healthy sleep habits may be necessary to maximise cognitive benefits of PA.

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Household Air Pollution from Cooking Fuels and Cognitive Decline in Older Adults: Evidence from Longitudinal Aging Study in India (2017–2019).

Abhishek Gupta, Kailash Chandra Das, Kunal Keshri - International Institute for Population Sciences, Mumbai

Introduction:

Exposure to high levels of air pollution is associated with poor health, including worse cognitive function. This study evaluates the relationship between exposure to air pollution from combustion of polluting household fuels and cognitive function using Longitudinal Aging Study in India (2017-2019).

Methods:

This study analysed 50,532 adults aged 50+. The use of polluting fuels such as wood, coal, kerosene, crop residue, or dung for cooking was assessed through self-report. Cognitive function was measured by performance across several cognitive domains and summarised into a total cognition score. Linear regression was used to test the relationship between polluting cooking fuel use and cognition, adjusting for key

demographic and socioeconomic factors.

Results:

Approximately 47% of respondents in India relied primarily on polluting cooking fuels, which was more common in rural areas. Consistently, using polluting cooking fuels was associated with poorer cognitive function in all countries, independent of demographic and socioeconomic characteristics. Adjusted differences in cognitive function between individuals using polluting and clean cooking fuels were equivalent to differences observed between individuals who were 6 years of age apart in India. Across countries, associations between polluting cooking fuel use and poorer cognition were larger for women.

Conclusion:

Results suggest that household air pollution from the use of polluting cooking fuel may play an important role in shaping cognitive outcomes of older adults in countries where reliance on polluting fuels for domestic energy needs still prevails. As India continues to age, public health efforts should seek to reduce reliance on these fuels.

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Understanding Gender Differences in Cognitive Aging in Rural Malawi Adriana Scanteianu - University of Pennsylvania

Current understanding of the cognitive process of aging is extremely limited to European and North American settings, leaving our understanding of aging in other regions of the world lacking. In contrast to high-income countries where few gender differences in cognitive aging have been documented, early research from rural Malawi indicates cognitive health is much lower for women in late life in this region, and declines more steeply than for men. Utilizing data from the Malawi Longitudinal Study of Families and Health, this paper is among the first to examine the hazard of cognitive impairment over the life course in an extremely low-income aging population in sub-Saharan Africa.

Employing a survival modeling approach, this study investigates the stark gender differences in cognitive impairment in rural Malawi. Results show that younger age at first birth was hazardous for women, while older age at first fatherhood was hazardous for men. Reproductive history, particularly the number of dead children, significantly influenced cognitive impairment risk in women, indicating a gendered toll of child mortality in a region where all-age mortality is high. Education emerged as a crucial protective factor, with the absence of education significantly increasing the hazard of cognitive impairment for women, yet not for men.

These findings highlight an urgency for targeted interventions aimed at expanding access to education and family planning strategies to postpone first births. Furthermore, this study underscores the impact of child mortality on mothers, motivating further research on how trauma affects cognitive health in aging populations.

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Analyzing the Influence of Mid-Life Employment Trajectories on Cognitive Aging in Chile Magdalena Delaporte, Irma T. Elo, Jere R. Behrman - University of Pennsylvania

As the global population ages, understanding the factors contributing to healthy aging becomes increasingly crucial. This paper delves into the relationship between mid-life employment trajectories and later-life cognition, utilizing a Chilean longitudinal dataset. Employing the Group-Based Trajectory Model (GBTM), distinct employment trajectories for males and females between 1980 and 2016 are estimated.

Subsequently, we link these trajectories to cognitive function scores to investigate the associations between individual trajectories and cognitive function in later life. Preliminary findings reveal significant associations between certain cognitive domains and labor force participation trajectories. We find four distinct labor force participation trajectories for men and women. Results show that men that have a high probability of continued employment demonstrate better cognitive outcomes, including orientation, memory, attention, and executive function. For women, a higher likelihood of working during between ages 30 to 60 correlates

with improved performance in delayed memory, attention, and executive function. These results provide valuable insights for policymakers and practitioners seeking to enhance cognitive well-being among older adults.

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16:45 - 18:15 Monday 9 September: Ageing 2 - Employment in later life

Unpacking trends in health, disability and employment in the UK, 2014-2023

Mark Bryan, Andrew Bryce, Jennifer Roberts, Cristina Sechel - University of Sheffield

The working age population in the UK has seen dramatic changes over the last decade, including worsening health (in particular mental health), rising prevalence of disability, falling unemployment and more recently rising levels of economic inactivity. In this paper, we seek to unpack these complex and interconnected trends to better understand the evolution of key labour market outcomes including labour force participation, employment rates and the disability employment gap. We use ten years of data from the Annual Population Survey. Applying decomposition techniques, we construct a suite of counterfactual scenarios to show how these outcomes would have evolved over the last ten years had the health composition of the population remained constant. Our results quantify the extent to which observed labour market trends can be attributed to changes in health and disability, relative to other changes to the working age population such as education levels and demographic composition. The research has important policy implications by exposing the areas where investment could most effectively be targeted to ensure greater and more equitable access to employment.

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Ethnic differences in pension protection in the UK: continuity and change between 2009-2023

Athina Vlachantoni - Centre for Research on Ageing and ESRC Centre for Population Change - Connecting Generations, University of Southampton; Yuanyuan Yin - Winchester School of Art, University of Southampton; Saddam Naaz Akhtar - Centre for Research on Ageing, University of Southampton; Spela Mocnik - Centre for Research on Ageing, University of Southampton

Previous research has evidenced ethnic differentials among working-age individuals' propensity to work for an employer who offers a pension scheme, indicating that working-age Bangladeshi and Pakistani individuals are less likely than White British individuals to be members of a workplace pension scheme. In 2011, the UK government introduced Auto-enrolment on workplace for individuals aged 22 and above and earning at a minimum threshold, in order to encourage younger individuals to commence financial planning for their retirement. Has this policy made a difference to ethnic gaps in pension protection, and are there differences in such protection by gender? This paper uses data from Understanding Society (2009-2023) to examine trends in workplace pension membership among individuals from different minority ethnic groups, paying particular attention to gender differences. In addition, the paper draws on the latest wave of data to explore the role of demographic, health, socio-economic and subjective indicators on workplace pension membership and having savings/ investments other than pensions. The results show that although Auto-enrolment appears to have had a positive impact on workplace pension membership among those who are in paid work as employees, there remain significant ethnic gaps in terms of employment and working as an employee, particularly for Bangladeshi and Pakistani individuals, and particularly for women. In addition, Bangladeshi and Pakistani individuals fare worse than other groups in terms of workplace pension membership, as well as other savings/ investments. These findings raise important questions about policies aimed at ensuring a secure retirement for all individuals.

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Competing demands for informal care provision: An intersectional multilevel analysis of individual heterogeneity and discriminatory accuracy (I- MAIDHA)

Edward Pomeroy - University of St Andrews, Francesca Fiori - University of Strathclyde

Informal care refers to unpaid help given to someone who needs support for a range of reasons, such as disability or old age. Population ageing is likely to increase the demand for informal care, heightening the importance of adult children as potential carers to their older adult parents. Adult children do not live single issue lives, but instead simultaneously belong to multiple social groups, with this diversity creating unique social positions, or intersectionalities. For example, individual characteristics such as gender and employment status combine with household-level characteristics, such as the presence of young children or vulnerable family members. Diversity in social characteristics has the potential to shape caring experiences, as being at a particular social intersection may either enable or constrain the ability of adult children to provide care to their non-co-resident parents. Despite the importance of considering intersectionalities within informal care research, few studies have adopted this approach. Therefore, this study exploits data from Wave 13 of the UKHLS Understanding Society and applies intersectional multilevel analysis of individual heterogeneity and discriminatory accuracy (I-MAIHDA) to assess and quantify the importance of considering intersecting social characteristics in influencing the provision of informal care. Preliminary findings provide novel insight into how various competing obligations for informal care provision, including caring for children and employment, combine to intensify inequalities for those who provide informal care. This research can aid policy making to ensure the most disadvantaged individuals are recognised, valued, and supported, thus empowering their role within informal care.

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Employment responses to a partner's disability onset: do working conditions matter?

Constance Beaufils, Karen Glaser, Ben Baumberg Geiger - King's College

Informal spousal caregiving is crucial in complementing formal care services and is likely to shape caregivers' health and work trajectories. Previous research has documented the impact of health diagnoses on partners' employment outcomes but did not focus on caregiving or observe how these effects vary with job characteristics. This research estimates the effects of spousal care shocks on employment behaviors, emphasizing how these effects differ with working conditions. We draw on data from the English Longitudinal Survey of Aging, an annual survey interviewing household members aged 50 and over in England. We identify individuals whose partners reported the onset of difficulties in activities of daily living between two waves (N = 953) and define this transition as a care shock. We combine coarsened exact matching and entropy balancing to estimate employment transitions after a care shock. The observed employment outcomes indicate whether the partner/potential caregiver is employed, working full-time or part-time, has the same job as in the previous wave, and reports to be looking for a new job. We explore variations in these outcomes based on gender and self-reported working conditions. While we find no significant effect of the partner's ADL onset on individuals' employment outcomes for both men and women, the impact is significant for those reporting adverse working conditions. This highlights the importance of considering heterogeneity in job characteristics when examining the relationship between caregiving and employment.

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09:00 - 10:30 Wednesday 11 September: Ageing 3: Health & care in later life

Unmet care needs over time: Social networks and persistent unmet needs

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Examining patterns of met and unmet needs for social care over time can contribute to a better understanding of inequalities between population groups in terms of care receipt. This study addresses three primary research questions. Firstly, it explores the dynamics of unmet needs among older adults in personal, practical, and emotional domains. Secondly, it investigates the classification of social networks among older

adults based on their interactions with family members and friends. Thirdly, it examines the associations between distinct types of social networks and the dynamics of unmet social care needs within each domain. The data used in this study were from Waves 8 and 9 of the English Longitudinal Study of Ageing (ELSA). The study cohort comprised individuals aged 65 and above who required social care in Wave 8 and participated in both waves. The analysis involved latent class analysis and multivariate logistic regressions. Findings indicate that among older individuals requiring social care, those needing personal care exhibited the highest proportion of persistent unmet needs, followed by emotional and practical care needs. Furthermore, five categories of social networks were identified: Diverse, Friends-focused, Couple-centred, Children-centred, and Restricted. Each network type exhibited distinct strengths and limitations vis-à-vis social care. For instance, Diverse networks were good at meeting all types of care needs, while Children-centered networks were good for practical help but fell short of fulfilling personal care demands. Similarly, Couple-centred networks were proficient in meeting personal care needs but lacked efficacy in addressing practical needs.

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Mental health and wellbeing among older people since the COVID-19 pandemic. Are we (all) back to normal? Evidence from England

Darío Moreno-Agostino - UCL Centre for Longitudinal Studies; ESRC Centre for Society and Mental Health, King's College London, Giorgio Di Gessa - University College London

Numerous studies have identified declines in mental health and psychosocial wellbeing over the course of the COVID-19 pandemic across the world and in different age groups, including older people. To date, however, few nationally representative studies have investigated whether mental health and wellbeing in later life have recovered since the end of the pandemic. Using repeated assessments from the English Longitudinal Study of Ageing (ELSA), this paper investigates changes in mental health and well-being since autumn 2021, after a successful and rapid COVID-19 vaccination rollout and the easing of COVID-19 restrictions. We use data from ELSA Wave 9 (pre-pandemic, 2018/19), two COVID-19 sub-studies (June/July and Nov/Dec 2020), and Wave 10 (October 2021 to March 2023) to examine, both cross-sectionally and longitudinally, the progression of mental health and wellbeing. We also investigate whether patterns varied by age-groups, sex, socioeconomic status, and partnership status. Preliminary results suggest that, since COVID-19, the prevalence of depression, anxiety, low quality of life, and poor life satisfaction have fallen and have, in most cases, gone back to the levels observed pre-pandemic. However, inequalities within the older population have persisted, and not all groups of older people have experienced similar recovery in their mental health and wellbeing.

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Bidirectional association between social relationships and physical capacity among older Chinese people **Jiecheng Luo, Baowen Xue, Anne McMunn - Research Department of Epidemiology and Public Health, University College London**

This study aims to investigate the bidirectional association between social relationships and physical capacity among older Chinese people and whether it differs by sex or urban/rural area. Up to 10,433 participants aged ≥ 50 adults were included from three waves (2011-2015) of China Health and Retirement Longitudinal Study (CHARLS). Social isolation (low/medium/high), feeling of lonely (yes/no) and self-reported lacking social support (yes/no) were measured as social relationships. Balance ability, chair stand speed, hand grip strength, and walking speed were measured as physical capacity. Age, sex, education, occupation, wealth, income, and urban/rural area were used as covariates. Three-wave random intercept cross-lagged panel models (RI-CLPM) were used to investigate the bidirectional association. Missing value was handled through full information maximum likelihood estimator. Between-person association showed individuals with social isolation and loneliness had poorer physical capacity except balance ability. At the within-person level, autoregressive parameter indicated that most of social relationships and physical capacity expected elevation in the next wave. In terms of cross-lagged association, lacking relationships generally predicted a loss of capacity in the next wave with the exception of walking speed, while decrease in balance ability and grip strength led to poorer relationships in the next wave. The stratified analyses only observed unidirectional lagged effects from loneliness to capacity among men and urban residents. These results suggested while lower physical capacity might impact social relationships, their associations were predominantly by the direction from social relationships to physical capacity. Hence, maintaining better social relationships can be

much more important to physical capacity.

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11:00 - 12:30 Wednesday 11 September: Ageing 4: Inequalities in later life

The effect of childhood family endowment on health inequality of middle-aged and elderly adults in China: A decomposition analysis

Zongpu Yue - Institute of Epidemiology and Health Care, UCL; Stephen Jivraj - Institute of Epidemiology and Health Care, UCL; Emily Murray - School of Health and Social Care, University of Essex

Family endowment is the resources and abilities family members can, to varying degrees, draw on from their own family unit, including economic capital, social capital, human capital, and parents' emotional support. People from well-endowed families will have more family resources or capitals and have advantages than those from poorly endowed families. This paper used nationally representative samples to investigate how childhood family endowment results in health inequality in middle-aged and elderly people in China. Data were obtained from wave 4 (2018) of China Health and Retirement Longitudinal Study. The analytic sample included 17,064 Chinese persons aged 45+ years. Forty items were selected to calculate frailty index as health indicator, and the health inequality was measured by the concentration index (CI), and the CI decomposition, and recentred influence function-CI-ordinary least square (RIF-CI-OLS) decomposition were used to distinguish how childhood family endowment contributes to health inequality. The CI was -0.063 (95%CI: -0.067 to -0.058), indicating ill-health was concentrated among the worse-off individuals with lower childhood family endowment. The CI decomposition revealed that emotional capital contributes around 25% to health inequality, social capital (20%), emotional support (13%), and human capital (0.5%) follow in respective importance. Thus, the childhood family endowment contributed 57.79% to the pro-well health inequality. The results of RIF-CI-OLS suggested that higher economic capital and human capital could widen and reduce health inequality respectively ($p < 0.01$), while the social capital and emotional support had no effect on health inequality. In order to eliminate health inequality in people's later life, interventions to ensure family resource equality should be taken as early in the life course as possible.

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How equal are Europe's top gender-equal countries when it comes to older population health? An empirical analysis using an intersectional approach

Babul Hossain, Maria Ruiz - Luxembourg Institute of Health

Despite the increasing recognition of gender equality as a fundamental component of social progress and improvement of public health, there exists an absence of understanding about the impact of gender and its intersectional attributes on older population health within European countries. This study aims to integrate the intersectionality and social determinants of health (SDH) framework to demonstrate gender differences in health outcomes among older adults (65+ years). This research examines multimorbidity and smoking habits of the top ten gender-equal countries in Europe using the last wave of the European Health Interview Survey conducted between 2018 and 2019 (N=97,754). The study employed multivariate models that included gender-stratified analysis considering various SDH. The findings suggest that there was a significant gender difference in multimorbidity. Our findings further indicated that even among top gender-equal countries like Sweden, Netherlands, Spain and Finland older women had a higher prevalence of multimorbidity than men. Considering the SDH factors, educational level, and living with a partner or children had been found significantly more impact on women's multimorbidity than men's. While looking at smoking habits, our findings suggest that older men were in a disadvantaged position than older women in countries like Spain, Belgium, Finland and Austria. Working status and citizenship status were a significant factor for men in predicting smoking. Further studies are needed to understand the gender dynamics of older population health in these European countries.

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The age of diversity: the neighbourhood demographic structure of ethnic groups in England and Wales, 2001-2021

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The growth of ethnic diversification in England and Wales between 2001-2011 at national and neighbourhood levels continued through the subsequent decade. This increased diversity stems in part from the movement of people to the UK, but is also driven by demographic changes in ethnic diversity associated with age. We use data from the 2001, 2011 and 2021 Censuses of England and Wales to investigate how age-based differences in national ethnic compositions translate into age-based differences in ethnic configurations in neighbourhoods. The analysis, measuring the extent to which a neighbourhood's ethnic diversity varies across age cohorts, offers a new means to assess the experience of ethnic diversity in the social worlds of neighbourhood residents. We focus on 11 ethnic groups comparable across census years and nine age cohorts aimed to capture a range of lifecourse stages, for consistent Lower Layer Super Output Areas ("neighbourhoods") from 2001-11-21. We find that ethnic diversity has increased across the age distribution over time - both nationally and in neighbourhoods. Ageing-related increases in ethnic mix in White majority neighbourhoods are apparent across all ages, with the biggest increases in middle-aged cohorts. The ageing out of White groups from some other neighbourhood types (e.g., majority Pakistani) is also clear. These findings provide insights on the distribution of ethnic group populations across age cohorts within neighbourhoods, which we suggest matter for the social conviviality of places and help to inform wider debates around intergenerational mixing and contact between ethnic groups, and the diverse experiences of ageing minority communities.

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Internet use and physical and mental health during the COVID-19 pandemic: a study on the European old age population

Gianmaria Niccodemi - University of Milano-Bicocca, Alessandra Gaia - University College London, Mino Novello - University of Milano-Bicocca, David Consolazio - University of Milano-Bicocca

Using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), we investigate whether, among the old age population (aged over 65), those who were internet users before the COVID-19 pandemic experienced better physical and mental health, during the pandemic, than age peers who did not use the internet. We consider three health outcomes: self-reported health, Body Mass Index and depression. To account for household-shared determinants of health and reverse causality, we estimate household fixed-effects regressions on the outcome-specific samples of individuals grouped into households of cohabiting couples who had the same level of the pre-COVID health outcome. First, contrary to what is suggested by random-effects regressions, our estimates, on average, point towards a non-significant or even detrimental effect of pre-COVID internet use on self-reported health, Body Mass Index and depression. The probability of depression varies by age: internet users in the age-range 65-70 were more likely to experience depression, while internet users aged over 80 were less likely to be depressed, compared to internet nonusers in the same age-range. Second, employing analogous models, we find that, among older internet nonusers, those with stronger social ties had better access to remote medical consultations during the COVID-19 pandemic; this result suggests that social capital may play a protective role and may contribute to bridging the digital divide. We conclude that, although internet use holds significant potential benefits for older adults, its impact is complex and multifaceted. Future interventions should be tailored to address these nuances, promoting beneficial uses of digital technology while mitigating its adverse effects.

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