

### THE APOE-ε4 ALLELE AND AGE SYNERGISTICALLY DRIVE DISEASE PROGRESSION IN ALZHEIMER'S DISEASE

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The Apolipoprotein E (APOE)-ε4 allele is the strongest genetic risk factor for Alzheimer's disease (AD) and other neurodegenerative dementias. Cross-sectional case-control studies suggest that the effect of APOE-ε4 decreases in old age. However, since APOE-ε4 is associated with mortality, these studies might be prone to bias due to selective survival. Therefore, we used multi-state-modeling in longitudinal cohort studies to examine the effect of APOE-ε4 on the transition through cognitive states (i.e. cognitively normal, mild cognitive impairment (MCI) and dementia) while taking death as a competing risk into account. Results from the German AgeCoDe study (n=3000, aged 75-101 years) showed that APOE-ε4 increases the risk for cognitive deterioration in all disease stages. Contrary to results from cross-sectional studies, the effect of APOE-ε4 on the transition from MCI to dementia increased with increasing age (HR=1.044, 95%-CI=1.001-1090). The direction of this effect was confirmed in a smaller sample from the Einstein Aging Study (n=744, HR=1.032, 95%-CI=0.949-1.122). To examine the pathophysiological basis of these results, generalized additive models were used to study AD biomarkers in the liquor of 1045 patients with MCI or AD-dementia. Here, increased amyloid (Aβ<sub>1-42</sub>) pathology was associated with increased tau pathology (pTau<sub>181</sub>), consistent with the amyloid-cascade-hypothesis. Interestingly, higher age and presence of the APOE-ε4 synergistically lowered the amount of amyloid required to exacerbate tau pathology (interaction p=0.012). Taken together, our results suggest that the effect of APOE-ε4 on disease progression increases with advancing age. An altered neuroinflammatory response to neurodegeneration should be further explored as potential underlying mechanism.

### ELDER ABUSE AND NEGLECT IN URBAN AND RURAL AREAS IN CHINA: PREVENTION STRATEGIES

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With acceleration of the ageing population globally, more and more governments are concerned about the potential increase in elder abuse and neglect (EA/N). Recently the National Office for Ageing and the provincial offices for ageing conducted a survey of 224,352 Chinese over the age of 60 years using household interviews to assess economy, health, service, social participation, culture, rights protection, livable environment, etc. Author's analysis of this data shows that 54% of the elderly people interviewed experienced physical and mental abuse or intimidation, and 6.95% of them felt that their legal rights were violated. Data also supports that the occurrence of EA/N was significantly correlated to self-care ability, economic status, and urban and rural regions of the elders. The researcher will discuss the practice and policy implications for the prevention of EA/N.

### SMOKING BEHAVIOUR: PATTERNS AND COSTS OF HEALTH SERVICE USAGE USING HAGIS AND LINKED ADMINISTRATIVE HEALTH DATA

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The associations between smoking and health are well documented. Using the Healthy Ageing In Scotland (HAGIS) survey linked to the administrative Scottish National Health Service (NHS) records this study analyses health service resource usage by older people according to self-reported smoking status. Individual level smoking status (current, ex-smoker, or never smoked), socio-demographic characteristics (age, gender, level of deprivation) and subjective health are sourced from people aged 50+ across Scotland using HAGIS. These responses are then linked to NHS Scottish Morbidity Records to analyse variation in health service usage as measured by the total number of days spent in hospital (daycases and inpatient stays), number of stays, and mean length of stay. Costs are then assigned by medical speciality. We use a two-part model to analyse the i) the probability of having been hospitalised at all, and ii) the quantum of resource usage and its associated cost for those who have been in hospital. Our study provides a conceptual and empirical framework for the associative relationship between smoking status and actual (rather than self-reported) health service usage and expenditure. This study demonstrates the insights to be gained from the linkage of individual survey responses to administrative health service data on resource usage and costs, and discusses the implications for health policy.

### MEANINGFUL ENGAGEMENT AND QUALITY OF LIFE AMONG ASSISTED LIVING RESIDENTS WITH DEMENTIA: EMERGENT FINDINGS

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This poster provides an overview of the aims, methods, and emergent findings from an ongoing five-year NIA-funded project (R01AG062310) examining meaningful engagement and quality of life among assisted living (AL) residents with dementia. The overall goal of this project is to determine how opportunities for meaningful engagement can best be recognized, created, and maintained for individuals with different dementia types and varying levels of functional ability. Guided by grounded theory, this qualitative study will involve 12 diverse AL communities in and around Atlanta, Georgia, USA. Presently, our interdisciplinary team is collecting data in four communities using ethnographic observations, semi-structured interviews, and resident record review. We are studying daily life in each community, following 30 resident participants, and actively recruiting and interviewing their formal and informal care partners. Based on ongoing analysis, we offer key emergent findings. First, meaningful engagement is highly individualized and dynamic. Differing personal interests, along with wide variations in cognitive and physical abilities, can present challenges for AL community staff and other care partners when trying to recognize what constitutes meaningful engagement for residents. Second, multiple complex factors interplay to shape the experience of meaningful engagement among persons living with dementia, such as personal characteristics, care partner background and training, AL community design and philosophy, and state/corporate regulations. Finally, flexibility and 'meeting the resident where they are at' appear to be critical to identifying and fostering meaningful engagement for persons living with dementia. We discuss the implications of these preliminary findings for translation, dissemination, and future research.

#### **FINDING THE ELDERS WHO STAYED- CONDUCTING OUTREACH IN THE AFTERMATH OF HURRICANE MICHAEL**

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The Florida Department of Elder Affairs (DOEA) provides programs and services for over 65,300 older people and adults with disabilities. These individuals are uniquely vulnerable and may be displaced, and/or disoriented during natural disasters. DOEA clients are dependent upon community-based services to provide supervision or assistance to perform basic self-care, which often makes sheltering in place alone a danger to their health and well-being. During Hurricane Michael (2018) many older adults who previously were independent sought help for many issues including property damage, utility interruption, food and medicine scarcity, and physical or mental health problems associated with the storm and its aftermath. In normal conditions, DOEA identifies older populations via Census tracts and then conducts outreach events to inform the public how to access social services. However, after the widespread displacement post-storm, traditional outreach approaches were insufficient. A method was needed to remove areas that were rendered uninhabitable and find who remained in place. DOEA identified viable neighborhoods by overlaying property damage locations on base layers of Census tracts with concentrations of older adults and polling places with high percentage of age 60+ voter participation in the subsequent

November election. Then in partnership with Feeding Florida, we provided information and registration assistance via local food distribution sites in those areas. This methodology of overlaying Division of Emergency Management property damage records and voter participation records against publicly available Census tract files is a strategy that could be replicated by other disaster and flood-prone communities or organizations that have similar needs.

#### **INCREASING VULNERABILITY AMONG OLDER AMERICANS ACT HOME-DELIVERED NUTRITION SERVICE CLIENTS**

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Older Americans Act (OAA) programs are designed to help frail and vulnerable older adults remain in their homes through the provision of long-term services and supports. Administrative data from the Administration for Community Living (ACL) show that older adults receiving OAA services are three times more likely to live below the poverty level (33.0%) as compared with all older adults (9.2%). In addition, they are almost twice as likely to be living alone (45%) as compared with the general population (28%). Using data from the recently released 2018 National Survey of Older Americans Act Participants, we examine the largest program administered by ACL, the OAA Nutrition Program, to see if the economic vulnerability of home-delivered nutrition service clients has changed over the past 10 years. Results from this study show that recipients of home-delivered nutrition services are more in need of low-cost or free meals in 2018 than they were in 2008 due to a 24% increase in Medicaid eligibility, 41% increase in those who report not having enough money or food stamps to buy food, and 101% increase in those who report receiving food stamps. This increase in economic need may be due to a demographic shift in the marital status and living arrangements of older adults, specifically the 75-84 age group. The increase in the percentage of older adults who are divorced, live alone, and have low income has made the home-delivered nutrition services program even more important today than it was a decade ago.

#### **THE INFLUENCE OF CUSTODIAL STATUS ON MARITAL AFFECTUAL SOLIDARITY AND MENTAL HEALTH AMONG GRANDPARENTS.**

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Increased life expectancy and the diversity of family structure have resulted in a substantial rise in the number of families with grandparents as the main caregivers (e.g. custodial grandparents). The structures of these families affect the well-being of all family members. After middle age, psychological well-being is associated with marital relationship quality, and raising one's grandchildren is a known source of strain to relationships. The current study examined adults aged 40 and older (M age = 57.6 yr, 53% female) using a nationwide sample from MIDUS to assess the extent