comorbidities, polypharmacy was present in 61.5% of people with diabetes, compared with 36.0% in people without diabetes. Significant risk factors for polypharmacy were diabetes (Relative-risk ratios/RRR=4.06, 95% CI 3.38, 4.86), older age (RRR=1.02, 95% CI 1.01, 1.03), male (RRR=0.64, 95% CI 0.55, 0.75), more comorbidity (RRR=2.46, 95% CI 2.30, 2.62), living with a partner (RRR=1.20, 95% CI 1.01, 1.42), and less wealth (RRR=0.93, 95% CI 0.87, 0.98). However, age, cohabitation, and wealth were not significantly related to excessive polypharmacy. Diabetes and the number of comorbidities were predominant risk factors for excessive polypharmacy. Current evidences confirmed both health condition and socioeconomic status were associated with medication use in older adults.

LONGITUDINAL RELATIONSHIP BETWEEN ENERGY UTILIZATION AND PHYSICAL AND COGNITIVE PERFORMANCE AS A FUNCTION OF AGE

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Energy utilization, which becomes more inefficient with age and is measured by a ratio of energy-cost-to-energy-capacity ("cost-ratio"), has been associated with functional decline. However, the interplay between longitudinal changes in energy efficiency and physical/cognitive functioning remains unclear. We investigated this relationship in 1020 participants of the Baltimore Longitudinal Study of Aging (baseline age: 68.9 (IQR: 59.8, 80.5), male: 44.7%). In linear mixed effects models adjusted for baseline age, sex, and height, an increasing cost-ratio was associated with faster decline in usual gait speed among those aged 50-64 years (beta = -0.20 m/s, p = 0.003), and >=65 years (beta = -0.16 m/s, p less than 0.001), but not those less than 50 years (beta = -0.22 m/s, p = 0.178). In models adjusted for baseline age, sex, race, and years of education, higher cost-ratio was associated with faster declines in executive function, as measured by time to finish Trail B, among those aged >=65 years (beta = 22.96 seconds, p = 0.020), but not <50 years (beta = -13.65 seconds, p = 0.557) or 50-64 years (beta = -15.61 seconds, p = 0.353). Together, these results suggest that energy utilization becomes more inefficient in the two to three decades prior to change in physical and cognitive functioning, implying it may act as an early marker of physiological aging. Further research is needed to understand the drivers of energy inefficiency, which may shed light on the biological mechanisms contributing to these declines.

SENSITIVITY OF SELF-REPORTED COMORBIDITIES COMPARED TO MEDICARE CLAIMS IN OLDER ADULTS WITH TRAUMATIC BRAIN INJURY

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Patient reported history of comorbid illness may be the only information available to the treatment team during an acute injury admission. Nevertheless, acute injury, particularly traumatic brain injury (TBI) which affects cognition, may decrease the patient's ability to accurately report medical history. Thus, the objective of this study was to evaluate the accuracy of patient-reported comorbid illness burden compared to the patient's Medicare administrative claims. Records of older adults treated for TBI at an urban level 1 trauma center 2006-2010 were linked to their Medicare administrative. Comorbidities were recorded in Medicare claims based on ICD9 codes and were reported in the trauma registry (TR) based on patient medical history recorded by a physician or nurse. Prevalence of each of the following comorbidities was calculated using information from the TR and claims: Alzheimer's disease and related dementias, chronic kidney disease, COPD, heart failure, diabetes, depression, stroke, and hypertension. Sensitivity of each patient-reported comorbidity was calculated using Medicare claims as the gold standard. We identified patient factors associated with accurate self-report using logistic regression. Among 408 older adults with TBI that linked to their Medicare claims, prevalence of each comorbidity was higher in Medicare claims compared to the TR, except for hypertension. Sensitivity for detecting these comorbidities using the TR ranged from 2% to 68%, with the highest sensitivity observed for hypertension. Older age and race were predictors of less accurate reported medical history. Reconciling self-reported patient history of these comorbidities with those reported in claims can better inform decisions regarding treatment.

ASSOCIATION BETWEEN GRIP STRENGTH AND COGNITIVE FUNCTION AMONG COMMUNITY-DWELLING OLDER ADULTS

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Background: Decline in both physical function and cognition among older adults has been associated with increased risk of dementia. Physical activity (PA) is beneficial for the improvement of both physical and cognitive function. The purpose of the study was to investigate the association between baseline physical function and cognitive function after 12 weeks of resistance training among older adults. Methods: Two hundred and thirty-seven community-dwelling older adults (N=237, 73.7±5.7 years, 58.2% female) participated in a 12-week resistance exercise program (3 times/week; 3 sets, 6-8 repetitions at 75-80% of the 1-repetition maximum), designed to increase strength and muscle mass of major muscle groups. Body composition, physical activity status, grip strength, cardiovascular risk factors, 6 minutes walking distance (6MWD), and Mini-Mental State Examination (MMSE) were measured at baseline and endpoint. The linear regression model was used to examine the association. Results:

Mean MMSE score was 27.5±2.1 at baseline and 28.1±2.2 after the exercise intervention. After the intervention, 57 declined, 55 remained the same, and 120 have improved in MMSE scores. We found that the MMSE score after the intervention was significantly associated with baseline grip strength (beta=.03, P<.05) among healthy older adults, after adjusting basic characteristics, cardiovascular risk factors and mobility at baseline. Conclusion: Our study found that baseline grip strength was strongly associated with cognitive function after the 12 weeks of resistance training. Muscle power, such as grip strength may play an important role in the effect of exercise intervention on cognition even among healthy independent older adults.

EFFECTS OF MEDICARE COMORBIDITIES, SELF-REPORTED FACTORS, AND POLYGENIC RISK SCORES IN RISKS OF AD/ADRD

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At this time there is no consensus on the origin, development, and progression of Alzheimer's Disease and related dementias (AD/ADRD) and the extent to which variation in the effects of potential risk factors affects the risk for this disorder is underexplored. In this paper we used HRS-Medicare-genetics data to evaluate the effects of risk factors from three groups: i) Medicare-based indicators of chronic diseases that have shown an association with AD/ADRD in the literature, ii) individual heath state, behavior, functional status, education and socioeconomic status, and iii) polygenic risk scores that incorporate known-to-date genetic risk factors for AD/ADRD. We found that: i) the effects of Medicare disease indicators are higher than the effects of self-reported diseases; ii) heart diseases, cerebrovascular diseases, and depression had a strong impact on AD/ADRD, while the presence of cancers sometimes decreases the risk of AD/ADRD; iii) systemic hypotension, chronic kidney disease, and chronic liver disease showed unexpectedly strong effects; iv) compared to females, males are affected by a lower number of risk factors albeit at higher magnitudes; v) BMI, alcohol, drinking, income, and number of education years are protective, vi) genetic scores associated with neurotransmitters (synapse functioning and loss) and neuroinflammation demonstrated strong significant effects, and vii) Blinder-Oaxaca decomposition demonstrated the important role of genetic factors in racial disparities in AD risk. The analyses show the extent to which links between the distinct differences in comorbidities, behavioral and socioeconomic factors can predict the risk for AD/ADRD.

LONGITUDINAL ASSOCIATION BETWEEN SERUM 25 HYDROXY VITAMIN D AND COGNITIVE FUNCTION AMONG ICELANDIC OLDER ADULTS

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Studies have indicated that low levels of serum 25 hydroxy vitamin D (25OHD) are associated with lower cognitive function among older adults while longitudinal studies have revealed controversial results. The aim was to investigate the longitudinal associations between 25OHD and cognitive function among older adults with 5-years follow up. The Age, Gene/Environment Susceptibility (AGES)-Reykjavik Study (N=3411) assessed cognitive function measuring memory function, speed of processing and executive function. 25OHD was measured using the Liaison chemiluminescence immunoassay and used as a continuous variable. Multivariate linear analysis, adjusting for numerous confounding factors, was used to calculate the longitudinal associations. All analyses were performed separated by gender. There was a high tendency for low levels of 25OHD i.e. 29.6% men and 37.7% women had hypovitaminosis D (<50 nmol/l). Both men and women had significantly lower scores in all aspects of cognitive function at the follow-up time period. Unadjusted correlations between 25OHD and cognitive functions showed a stronger correlation for women, whereas women had lower scores in all aspects of cognitive function associated with low 25OHD. After adjusting for potential confounders, e.g. age, education, lifestyle and health-related factors, 25OHD and cognitive function were not significantly associated. Observational studies indicate that lower levels of vitamin D are associated with lower cognitive function. Intervention studies are yet to show a clear benefit from vitamin D supplementation. More longitudinal- and interventional studies, with longer follow-up duration, are needed.

TOWARD AN OPERATIONAL DEFINITION OF COGNITIVE LIFESTYLE: MODELING RESERVE ACROSS THE LIFESPAN

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A recent systematic review of current definitions of cognitive reserve across the lifespan was undertaken by our group and five reserve constructs were identified: Educational attainment, sociological position, occupational complexity, cognitive ability, and engagement in leisure activities. The aim of this study was to test whether the different constructs are predictive of cognitive performance in older adults. A theoretical model of cognitive lifestyle was designed to assess reserve across the lifespan and the different measures were mapped in individuals aged >=65 years (N=7,762; 54.47% women) from the Cognitive Function and Ageing Study (CFAS II). Multivariable logistic regression analyses, controlling for age and sex, were used to determine the relationship between later life cognitive function and the five identified measures of reserve. In support of previous findings, the results show that risk of cognitive decline decreases with additional education (OR=0.89; 95% CI= 0.86, 0.94), increasing fluid intelligence (OR=1.00; 95% CI= 0.99, 1.00), and participation in leisure activities (OR= 0.27; 95% CI=0.17, 0.42), and that the lower the hierarchical position of a person's social