

DISPARITIES IN DENTAL SERVICE USE AMONG ADULT POPULATIONS IN THE UNITED STATES

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This paper aimed to examine disparities of dental service utilization for younger (20-49), middle-aged (50-64), and older adults (65+), among Whites, Hispanics, Blacks, Asians, American Indians or Alaska Natives (AIAN), and Native Hawaiian or other Pacific Islanders (NHOPI). Weighted logistic regression models were conducted to analyze nine waves of data (2002-2018) from the Behavioral Risk Factor Surveillance System. Results show that the all-wave average prevalence was 71% and racial/ethnic disparities increased with age. Black older adults had the lowest level of dental service utilization (65%), comparing to the two highest groups: White older adults (79%) and Asian older adults (76%). The younger adult populations had low prevalences with the lowest among Asians (65%). The AIAN and NHOPI all age groups tended to have average or below average prevalences. Health policy, federal funding, and community-based programs should address needs of dental service utilization for racial/ethnic minorities including Blacks, AIANs, and NHOPIs.

Session 2285 (Symposium)

PERCEIVED PHYSICAL FATIGABILITY: A PROGNOSTIC MARKER OF BIOLOGICAL, ORGAN SYSTEM, AND BRAIN AGING

Chair: Nancy W. Glynn

Co-Chair: Eleanor Simonsick

Discussant: Basil Eldadah

Characterizing perceived physical fatigability enables researchers to quantify an individual's susceptibility to experiencing fatigue in the context of a standardized physical task. This approach eliminates self-pacing, and is a less-biased, more sensitive means to measure the degree to which fatigue may limit activity. Our previous work with two validated measures of perceived fatigability, the Pittsburgh Fatigability Scale (PFS) and Borg Rating of Perceived Exertion (RPE) at the end of a standardized 5-minute treadmill walk, are prognostic indicators of phenotypic aging. This symposium will present new directions related to greater fatigability as a marker of biological aging, organ system health and functioning, as well as brain pathology and structure. Specifically, Mr. Katz will explore the relationship between leukocyte telomere length, a marker of biological aging, with PFS fatigability in participants from the Long Life Family Study. The other four papers use data from the Baltimore Longitudinal Study of Aging (BLSA) and RPE fatigability (RPE). Drs. Simonsick and Karikkineth investigate fatigability as an early marker of aging and disease related impacts on key organ systems, specifically diminished renal function as reflected in estimated Glomerular Filtration Rate and cardiovascular health evaluated as vascular stiffness. Ms. Liu and Dr. Schrack will share whether there are associations of perceived fatigability with brain health, specifically Alzheimer's disease-related pathology (PiB) and changes in

brain structure. Lastly, our Discussant, Dr. Eldadah, will critically review the presentations in the context of new directions in fatigability research.

ASSOCIATION OF LEUKOCYTE TELOMERE LENGTH WITH PERCEIVED PHYSICAL FATIGABILITY

Rain Katz,¹ Joseph Zmuda,² Joseph Lee,³ Lawrence Honig,⁴ Kaare Christensen,⁵ Mary Feitosa,⁶ Mary Wojczynski,⁷ and Nancy W. Glynn,⁸ 1. *University of Pittsburgh Graduate School of Public Health, Pittsburgh, Pennsylvania, United States*, 2. *University of Pittsburgh, Pittsburgh, Pennsylvania, United States*, 3. *Columbia University, New York, New York, United States*, 4. *Columbia University Irving Medical Center, New York, New York, United States*, 5. *Department of Public Health, University of Southern Denmark, Odense, Syddanmark, Denmark*, 6. *Washington University School of Medicine in St. Louis, St. Louis, Missouri, United States*, 7. *Washington University School of Medicine, Washington University School of Medicine, Missouri, United States*, 8. *University of Pittsburgh Graduate School of Public Health, Pittsburgh, Pennsylvania, United States*

Leukocyte telomere length (LTL) is a potential marker of biological aging, but its relationship to fatigability, a prognostic indicator of phenotypic aging (e.g., functional decline) is unknown. We hypothesized shorter LTL would predict greater perceived physical fatigability. Two generations of participants (N=1,997; 309 probands, 1,688 offspring) were from the Long Life Family Study (age=73.7±10.4, range 60-108, 54.4% women). LTL was assayed at baseline and 8.0±1.1 years later perceived physical fatigability was measured using the validated, self-administered 10-item Pittsburgh Fatigability Scale (PFS, 0-50, higher scores=greater fatigability). Prevalence of greater physical fatigability (PFS scores≥15) was 41.9%. Using multivariate linear regression, one kilobase pair shorter LTL predicted higher PFS Physical scores ($\beta=0.9$, $p=0.025$), adjusted for family relatedness, generation (indicator for age), field center, follow-up time, sex, and follow-up body mass index, physical activity, health conditions. LTL, a promising marker of future fatigability, may allow for early identification of those at-risk for deleterious aging.

FATIGABILITY: AN EARLY MARKER OF DIMINISHED RENAL FUNCTION?

Eleanor Simonsick,¹ Ann Moore,² Michelle Shardell,³ Pei-Lun Kuo,⁴ Ajoy Karikkineth,² and Luigi Ferrucci,² 1. *National Institute on Aging/NIH, Baltimore, Maryland, United States*, 2. *National Institute on Aging, Baltimore, Maryland, United States*, 3. *University of Maryland School of Medicine, Baltimore, Maryland, United States*, 4. *National Institute on Aging, National Institute on Aging, Maryland, United States*

Renal function declines markedly with age due to normal aging and/or disease processes and impacts multiple systems. Diminished renal function may manifest as low exercise tolerance and fatigue threshold. Using data on 951 well-functioning (usual gait speed >.67m/s and no difficulty walking ¼ mile) men and women (51%) aged 60-89 years in the Baltimore Longitudinal Study of Aging, we evaluated the cross-sectional association between perceived fatigability (Rating Perceived Exertion after 5-minute treadmill

walk at 1.5mph) categorized as 6-7, 8-9, 10-11 and 12+ and GFR using Cockcroft-Gault. For each fatigability increment, likelihood of suboptimal (GFR=75-89, 21%), diminished (GFR=60-74, 26%) and poor renal function (GFR=15-59, 30%) relative to GFR \geq 90 was respectively OR(95%CI) p-value 1.51(1.16-1.96).002, 1.38(1.04-1.83).027 and 1.68(1.22-2.31).002 adjusted for demographics, weight, height, smoking, exercise and anemia. Findings were similar for men and women. Perceived fatigability may facilitate identification of apparently well-functioning older adults on the precipice of suboptimal to poor renal function.

ASSOCIATION BETWEEN ARTERIAL STIFFNESS AND FATIGABILITY IN WELL-FUNCTIONING OLDER ADULTS

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The association between vascular health measured by arterial stiffness and fatigability, a marker of future mobility decline, is unknown. We examined 1210 men (47.7%) and women from the Baltimore Longitudinal Study of Aging, mean age 66.6 \pm 13.9 years. Perceived fatigability was assessed after a 5-minute, treadmill walk using Borg rating (range 6-20). Arterial stiffness was determined by carotid femoral pulse wave velocity (PWV). In linear regression analyses fatigability and PWV were associated in men (Beta/P-value) (0.160/0.001) and women (0.136/0.008). Adjustment for mean arterial and pulse pressure attenuated the association in women (0.104/0.050) but not men (0.160/0.001). The association was significant among those with slower usual and rapid gait speeds, longer 400m walk time and slower repeated chair stands pace (all p<0.05). Arterial stiffness is associated with a greater proneness to fatigue especially in older adults exhibiting poorer mobility. The underlying mechanisms appear to differ between men and women.

ASSOCIATIONS BETWEEN PERCEIVED FATIGABILITY AND AMYLOID STATUS IN THE BALTIMORE LONGITUDINAL STUDY OF AGING

Fangyu Liu,¹ Ryan Dougherty,² Amal Wanigatunga,² Murat Bilgel,³ Yang An,⁴ Eleanor Simonsick,⁵ Susan Resnick,³ and Jennifer Schrack,² 1. *Johns Hopkins University, Baltimore, Maryland, United States*, 2. *Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, United States*, 3. *National Institute on Aging, Baltimore, Maryland, United States*, 4. *NIA, Baltimore, Maryland, United States*, 5. *National Institute on Aging/NIH, Baltimore, Maryland, United States*

Higher level of and greater longitudinal increase in perceived fatigability are linked to cognitive decline and lower brain volumes in older adults. However, it remains unclear whether perceived fatigability is associated with Alzheimer's disease-related brain pathology. In the BLSA, 163 participants without neurological disease or cognitive impairment (aged 74.7 \pm 8.4 years, 45% men) were assessed for perceived fatigability using rating of perceived exertion after a 5-minute (0.67 m/s) treadmill walk and A β burden using 11C-Pittsburgh compound B (PiB) positron emission

tomography. Forty-four participants were PiB+ based on a mean cortical distribution volume ratio (DVR) cut point of 1.066. After adjusting for demographics, body composition, comorbidities and ApoE-e4, higher perceived fatigability was not associated with PiB+ status (OR=0.84; 95% CI: 0.69, 1.05). Results suggest perceived fatigability may contribute to cognitive decline through pathways other than A β pathology. Future studies should target other mechanisms linking perceived fatigability and cognitive decline.

LONGITUDINAL ASSOCIATION BETWEEN PERCEIVED FATIGABILITY AND BRAIN VOLUMES IN COMMUNITY-DWELLING OLDER ADULTS

Jennifer Schrack,¹ Fangyu Liu,² Yang An,³ Amal Wanigatunga,¹ Alden Gross,¹ Eleanor Simonsick,⁴ Luigi Ferrucci,³ and Susan Resnick,³ 1. *Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, United States*, 2. *Johns Hopkins University, Baltimore, Maryland, United States*, 3. *National Institute on Aging, Baltimore, Maryland, United States*, 4. *National Institute on Aging/NIH, Baltimore, Maryland, United States*

Perceived fatigability is linked to declining physical and cognitive performance, yet whether fatigability reflects early subclinical change in brain structure is unknown. Using mixed effects models, we assessed the longitudinal association of 3T MRI-derived brain volumes with perceived fatigability after a 5-min treadmill walk (0.67 m/s, 0% grade) using the Borg Rating of Perceived Exertion scale (range 6-20) in 802 BLSA participants (age 68.2 \pm 12.4 years, 45% men 66% White). In models adjusted for intracranial volume, demographics, chronic conditions, and CESD score, declining gray matter volumes in the frontal (β =-0.01) and temporal (β =-0.02) lobes, as well as the hippocampus (β =-0.25), precuneus (β =-0.10) and thalamus (β =-0.19) were associated with higher fatigability. Larger ventricular volumes were also associated with higher fatigability (β =0.02). Brain atrophy, particularly in gray matter and the hippocampal region, is longitudinally associated with increased fatigability in cognitively normal older adults, making it a potential marker of brain atrophy.

Session 2290 (Symposium)

PROSPECTIVE MONITORING OF NEWLY MARKETED DRUGS IN FRAIL OLDER ADULTS USING REAL-WORLD DATABASES

Chair: Dae Kim

Co-Chair: Elisabetta Patorno

In recent years several new drugs have been approved for treatment of heart failure and type 2 diabetes. Despite their life-prolonging benefits, uptake of new drugs is often slow among older patients with frailty due to under-representation of frail older adults in pivotal clinical trials and concerns for adverse events. To optimize pharmacotherapy, timely evaluation of the drug benefits and risks is urgently needed. We propose a novel drug monitoring framework that prospectively evaluates the effectiveness and safety of newly marketed drugs for frail and non-frail patients in real-world databases. This framework utilizes a validated claims-based frailty index (CFI) (range: 0-1; frail if \geq 0.20) to find early signals for effectiveness and safety of new drugs by updating