satisfaction \((r = -0.55, p = .001)\); 5TSTS \((r = -0.64, p < .001)\) and 4SST \((r = 0.37, p = 0.039)\) were also significantly correlated with participation accomplishment while MSL \((r = 0.37, p = 0.040)\) showed a significant association with participation satisfaction. SET demonstrated excellent test-retest reliability \((ICC = .92)\). Bland-Altman analysis determined the 95% Limits of Agreement to be \(-258.5\) to \(+271.5\) ms (mean difference = \(-6.5\) ms; 95% CI of difference = \(-43.1\) to \(56.1\)), suggesting that bias was not a concern. SEM \((100.5\) ms) and MDC95 \((278.5\) ms) for SET represented 9.3% and 25.8% of the mean, respectively. Collectively, findings suggest that SET may have clinical utility as a reliable assessment in older adults that relates to meaningful constructs, such as participation.

**METABOLOMICS FOR THE EXPLORATION OF BIOMARKERS IN SEVERE SARCOPENIA AMONG OLDER MEN**

Hyung Eun Shin\(^1\), Miji Kim\(^1\), Daehyun Lee\(^2\), Jae Young Jang\(^1\), and Chang Won Won\(^1\), 1. Kyung Hee University, Seoul, Seoul-t'ukpyolsi, Republic of Korea, 2. Kyung Hee University, Seoul, Seoul-t'ukpyolsi, Republic of Korea

The pathophysiology of sarcopenia is complex and multifactorial; however, it has not been fully elucidated. This preliminary study explored novel biomarkers of severe sarcopenia through a metabolomic analysis of plasma metabolites in community-dwelling older men. Twenty older men (mean age: 81.9±2.8 years) were randomly selected from the Korean Frailty and Aging Cohort Study. Participants with severe sarcopenia were compared to healthy, age-, and body mass index-matched controls \((n = 10)\) each. Severe sarcopenia was diagnosed using the Asian Working Group for Sarcopenia 2019 criteria. Non-targeted metabolomic profiling of plasma metabolites was performed using capillary electrophoresis time-of-flight mass spectrometry. Among the 191 plasma metabolic peaks, 10 metabolites differed significantly between healthy controls and participants with severe sarcopenia. The plasma concentrations of l-alanine, homocitrulline, n-acetylserine, gluconic acid, n-acetyllalanine, proline, and sulfoxyproline were higher, while the concentrations of 4-methyl-2-oxovaleric acid, 3-methyl-2-oxovaleric acid, and tryptophan were lower in participants with severe sarcopenia than in healthy controls \((p < 0.05)\). Of the 57 metabolites quantified in target metabolites, L-alanine \((area \ under \ the \ receiver \ operating \ characteristic \ curve \ [AUC] = 0.760, p = 0.049)\), gluconic acid \((AUC = 0.800, p = 0.023)\), proline \((AUC = 0.785, p = 0.031)\), and tryptophan \((AUC = 0.800, p = 0.023)\) predicted the presence of severe sarcopenia. In conclusion, plasma metabolomic analysis demonstrated significant changes in amino acid, arginine, proline, and pentose phosphate metabolism in participants with severe sarcopenia. The identified metabolites could be helpful in understanding the underlying pathophysiology of sarcopenia.

**EARLY PHYSICAL AND MENTAL HEALTH PREDICTORS OF NIGHTTIME DRIVING DIFFICULTY IN OLDER ADULTS**

Colleen Peterson\(^1\), and Toben F. Nelson\(^2\), 1. University of Michigan Transportation Research Institute, Ann Arbor, Michigan, United States, 2. University of Minnesota, Minneapolis, Minnesota, United States

Older drivers are expected to make up about 25% of licensed U.S. drivers by 2050. Describing early predictors of driving difficulty can identify interventions that might delay driving cessation or support successful transition to driving retirement. In this exploratory study, we analyzed nationally representative data from the longitudinal National Social Life, Health, and Aging Project (NSHAP) conducted in 2005-06, 2010-11, and 2015-16. Our purpose was to ascertain mental health and physical functioning correlates of increased nighttime driving difficulty, which often precedes daytime difficulties. The sample included 1,454 drivers with observations at all 3 waves aged 57 to 85 at baseline. By wave three, adjusting for non-response and sampling bias, 59% reported no driving difficulty, 23% reported some or much difficulty, and 17% reported no longer being able to drive at night. Results of mixed-effect ordinal logistic models, adjusting for demographics, showed increased inability to drive at night was associated most strongly with self-report of poor or fair physical health \((OR=10.4, 95\%CI=6.2,17.5)\); OR=2.4, 95%CI=1.8,3.2\), considering oneself “not at all active” \((OR=2.9, 95\%CI=1.3, 6.4)\), and being unable to balance heel-to-toe for 10 seconds \((0.00\%\) success; OR=4.8,95\%CI=1.5,15.5; less than 10 seconds: OR=2.3, 95\%CI=1.1,4.9)\). Although generalized self-reported mental health was not associated with increased nighttime driving difficulty, each additional depressive symptom \((CESD-11)\) increased the odds of having greater driving difficulty by 12% \((95\%CI=1.1,1.5)\). This study found early predictors of increased nighttime driving difficulty and retirement, providing opportunity to inform interventions to reduce roadway risk to older adults and others.

**ASSOCIATIONS BETWEEN MEASURES OF SLEEP QUALITY, PHYSICAL ACTIVITY, ANXIETY, AND STRESS AMONG ADULTS**

Sally Paulson\(^1\), Michelle Gray\(^2\), Anthony Campitelli\(^2\), Joshua Gills\(^3\), Megan Jones\(^3\), Erica Madero\(^3\), Jennifer Myers\(^3\), and Jordan Glenn\(^3\), 1. St. Elizabeth Healthcare, Cincinnati, Ohio, United States, 2. University of Arkansas, Fayetteville, Arkansas, United States, 3. Neurotrack Technologies, Redwood City, California, United States

Good quality sleep is important for physical and mental well-being and plays a vital role in healthy aging. Additionally, sleep quality is influenced by multiple factors associated with aging, such as lifestyle, depression, and physical activity levels. Therefore, the purpose of this study was to explore the relationship between self-reported measures of physical activity levels, anxiety, stress, and sleep quality among adults aged 45-75 years. Adults \((N = 204)\) completed the short form International Physical Activity Questionnaire (IPAQ), Generalized Anxiety Disorder 7-Item Scale (GAD-7), Perceived Stress Scale (PSS), and the Pittsburgh Sleep Quality Index (PSQI). Participants were classified as either good quality sleepers \((GQS, n = 65, 65.7\%\) female, \(M\&D\) age: 61.7±8.9 yrs; mass: 82.8±16.7 kg, height: 169.6±10.2 cm, education: 17.3 yrs) or poor quality sleepers \((PQS, n = 139, 77.7\%\) female, \(M\&D\) age: 61.9±8.0 yrs; mass: 83.1±16.2 kg, height: 166.4±8.5 cm, education: 18.0 yrs) using their PSQI

---

---
global score. A score of ≥5 denoted PQS. Data were analyzed using descriptive statistics, Spearman correlation, and Chi-square (p ≤ .05). Sleep quality was negatively associated with the PSS (r = -.17, p = .02) and GAD-7 (r = -.19, p < .01). Adults reporting PQS presented with higher levels of perceived stress and generalized anxiety. The relation between sleep quality and IPAQ was significant (X2 = 8.47, p = .01). These results suggest there was a greater tendency for PQS to report lower levels of physical activity and higher levels of stress and generalized anxiety.

**CARDIOVASCULAR DISEASE AND PHYSICAL ACTIVITY PHENOTYPES WITH FALLS: BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM**

Minsuk Oh1, and Kelly Ylitalo2, 1. Baylor University, Woodway, Texas, United States, 2. Baylor University, Waco, Texas, United States

Cardiovascular disease (CVD) is associated with a higher risk of falls and physical activity (PA) can prevent falls. However, the role of PA in the association between CVD and falls is unknown. We examined the associations of four CVD–PA phenotypes (no CVD–PA, no CVD–no PA, CVD–PA, CVD–no PA) with any, recurrent, and injurious falls. Middle-aged and older adults ≥ 45 years (n=295,282; N=130,103,093) from the 2018 Behavioral Risk Factor Surveillance System who self-reported CVD, leisure-time PA, and falls in the previous 12 months were examined. The weighted prevalence ratio (PR) of any (≥ 1 fall), recurrent (≥ 2 falls), and injurious (≥ 1 injurious fall) falls across CVD–PA phenotypes was estimated using Poisson regression models with adjustment for sociodemographics and major health characteristics. The likelihood of any, recurrent, and injurious falls was greater across the unhealthier CVD–PA phenotypes in fully adjusted models. In the total sample, no CVD–no PA (PR: 1.19; 95% confidence interval (CI): 1.14, 1.24), CVD–PA (PR: 1.22; 95% CI: 1.15, 1.29), and CVD–no PA (PR: 1.29; 95% CI: 1.23, 1.35) phenotypes were more likely to report injurious falls, than no CVD–PA phenotype. Engaging in leisure-time PA may be an important lifestyle strategy for fall prevention in midlife and older adults, particularly those with CVD. Our findings could be useful for primary and/or secondary fall prevention efforts by healthcare providers who treat midlife and older adults with CVD.

**THE IMPACT OF SOCIAL DETERMINANTS ON SLEEP HEALTH AMONG MIDDLE-AGED AND OLDER ADULTS**

Rebecca Lorenz, Heather Orom, Samantha Auerbach, Chin-Shang Li, and Yu-Ping Chang, University at Buffalo, Buffalo, New York, United States

Poor sleep health, including short or long duration and/or irregular timing may lead to a variety of chronic health conditions including diabetes and heart disease. An estimated 50-70 million adults in the United States have poor sleep health and this burden is disproportionately felt among systematically disadvantaged groups. While social and behavioral determinants of sleep duration and quality have been examined, sleep health, a multidimensional concept, has been less explored. The study aims to examine the impact of social determinants on sleep health among middle-aged and older adults. Data from the 2014 wave of the Health and Retirement Study were weighted and restricted to respondents of “Leave-Behind” questionnaire (n=5334). Sleep Health score was derived from sleep variables (range 0-100). Structural equation modeling was conducted using the R package lavaan. Sample mean age was 68.2 years (SD=10.1). Majority were female (60%) and white (76%) with mean Sleep Health score of 50 (SD=5.2). Black (p< 0.0001) and Latinx respondents (p< 0.0001) had worse sleep health than white respondents. Depression, financial strain, and neighborhood characteristics of socioeconomic status, social cohesion, and physical disorder mediated the relationship between race and sleep health. Ongoing chronic stress and everyday discrimination also mediated the relationship between race and Sleep Health among Black vs. white respondents. These findings suggest multiple individual and neighborhood-level determinants may negatively influence sleep health among a nationally representative sample of middle-aged and older Black and Latinx adults. Neighborhood-level characteristics may be modifiable factors that can be targeted to improve sleep and related health outcomes.

**INSTABILITY OF ECOLOGICALLY DERIVED MOOD, PAIN, AND FATIGUE SYMPTOMS IN OLDER ADULTS: THE ROAMM STUDY**

Eerta Cenko, Emily Smail, Roger Fillingim, Mamoun Mardini, Sanjay Ranka, Yashaswi Karnati, Jordan Alpert, and Todd Manini, University of Florida, Gainesville, Florida, United States

Background: Accurate assessments of mood, pain, and fatigue, are fundamental for evaluating and optimizing well-being in later life. However, traditional methods often do not capture instability – a measure of variability that incorporates the temporal order of the experiences. Objectives: Using the Real-time Online Assessment and Mobility Monitoring (ROAMM), a novel smartwatch platform, we sought to compare the instability of ecologically derived ratings of mood, pain, and fatigue symptoms among community-dwelling older adults.

Methods: Thirty-one participants answered questions on a smartwatch for approximately 2 weeks. Questions were delivered in the morning, afternoon, and evening, three days a week. Participants rated their current mood, pain, and fatigue on an anchored scale ranging from 0 to 10. We calculated the mean squared successive difference (MSSD) between ratings to determine the instability of each symptom.

Results: On average, instability was highest for mood (MSSD = 4.44) and lowest for pain (MSSD=1.51). Mood instability was moderately correlated with pain (r= 0.42, p = 0.02) and fatigue (r= 0.45, p = 0.01) instability, while fatigue and pain instability were strongly correlated (r=0.82, p< 0.01).

Conclusions: Results suggest that instability in pain, mood, and fatigue ratings are inter-correlated. The strong association between pain and fatigue instability suggests a co-occurrence that will aid in understanding the origins of these complex states. Repeated ecological assessment of common gerontological symptoms might provide new knowledge about the psychosocial well-being of older adults.