Transportation is vital in the daily lives of older adults and provides access to health care services and health enhancing activities, such as social engagement. Disparities in mobility exist for older African American and Hispanic adults compared to non-Hispanic Whites, including higher likelihood of driving cessation at an earlier age and having a higher risk for reduced life space. This poster presents findings from a qualitative analysis of data from the Using Geo-Ethnography to Explore the Spatial Accessibility of Health Services for Aging Minorities Study (GeoSAS), a mixed methods study of older minority adults in Houston, TX. Using interpretive phenomenological analysis, the transcripts of semistructured interviews with 23 older adults (13 African American and 10 Hispanic; 17 female; mean age = 71.3 yrs, SD = 6.3 years) were analyzed to address the research question: What are the mobility experiences and perceptions of minority older adults regarding healthcare access and social engagement? Based on an ecological systems theoretical framework, we found reciprocal influences of (1) healthcare systems and transportation utilization and (2) participants’ health and well-being, mobility, and social engagement. Support from family members and financial capacity were critical for participants’ mobility. Implications of this research include educating health care providers about patients’ transportation experiences and barriers, optimizing social support to increase mobility, and addressing systematic disparities in transportation access to enhance health and well-being for older minority adults.

VALIDATING SILICONE WRISTBANDS TO MEASURE PESTICIDE EXPOSURES AMONG OLDER ADULTS -- PROOF-OF-CONCEPT STUDY

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Silicone wristbands have been used to measure exposure to pesticides and other chemicals among children and younger farm workers, but not in older adults. Thus, we aimed to examine exposure to pesticides using silicone wristbands in a small cohort of older adults living on agricultural land, with variable contact with fields and pesticides. We also investigated correlations between pesticide levels on wristbands and urinary pesticide metabolites. Organophosphate (OPH) pesticides and several organochlorines were measured in wristbands worn by 15 males age 70+ (10 farmers using pesticides and 5 non-farmers with no recent pesticide use). Wristbands were worn continuously for 5-days. End-of-day urine samples were collected on days 1-3-5. Spearman correlations and Wilcoxon Scores were calculated. Five pesticides were quantified in the wristbands and detection frequencies ranged from 40-90%. In urine, 12 OPH metabolites were quantified, but only 5 were detected in >50% of the samples. None of 5 urinary herbicides were detected. Imputation was performed by dividing minimum-detect by square-root-2. Malathion was only detected in farmers compared to non-farmers. Correlations between OPH urinary metabolites and wristband were examined but only two were significant and were negative in direction. Notably, organochlorine DDE on the wristbands was significantly correlated with 3 OPH metabolites. These unexpected relationships, based on small numbers, suggest a need to replicate this work in a larger study sample to explore potential for confounding or mixtures in future studies of pesticides and health in older farmers.

MACHINE LEARNING ANALYSIS OF MOUSE FRAILTY FOR PREDICTION OF BIOLOGICAL AGE AND LIFE EXPECTANCY

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In mammals, the lack of accurate biomarkers for biological age is a current limitation to identifying novel aging interventions. Molecular biomarkers including DNA methylation hold promise but are invasive and currently expensive. The Frailty Index (FI) quantifies the accumulation of health-related deficits and is fast, cheap, and non-invasive. Studies have demonstrated that FI correlates with age and mortality risk in mice and humans. However, the FI has not been modelled to directly predict biological age or life expectancy. We tracked aging male C57BL/6 mice until their natural deaths, scoring them longitudinally with the FI. We find that FI score correlates with and is predictive of age and that some but not all parameters of the FI are individually well-correlated with age. To better predict chronological age, we performed an elastic net regression on the FI termed FRIGHT (Frailty Inferred Geriatric Health Timeline) Age. FRIGHT Age is a strong predictor of age (r2=0.73, median error = 47.5 days), but is not superior to chronological age at predicting life expectancy. To better predict mortality, we built a random forest model termed the AFRAID (Analysis of Frailty and Death) score, which predicted survival at multiple ages (r2=0.375, median error = 46.4 days). The FRIGHT and AFRAID models were responsive to chronic treatment with enalapril (30mg/kg/day), an angiotensin converting enzyme inhibitor that extends lifespan, and methionine restriction, a dietary intervention that extends healthspan and lifespan. Our findings underscore the value of assessing non-invasive biomarkers for aging research and may help speed the identification of aging interventions.

WHITE MATTER INTEGRITY UNDERLYING SUBSYNDROMAL DEPRESSION SYMPTOMS IN DEMENTIA CAREGIVERS

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Past research shows that major depression is associated with lower white matter integrity in fronto-limbic and other areas. But it is not known whether the integrity of these white matter connections is associated with subsyndromal depression symptoms, a marker of risk for major depression, in family dementia caregivers (dCGs) who reported stress. If specific aspects of white matter integrity are related to depression symptoms in this high-risk group, this could provide a biomarker of vulnerability or target for treatment. Participants included 41 dCGs (average age=69, standard deviation=6.4), who underwent a 7 Tesla 64-direction (12-minute) diffusion-weighted imaging sequence. Analyses compared dCGs with (n=20) and without (n=21) subsyndromal depression symptoms (nine-item Patient Health Questionnaire scores ≥5). Using fractional anisotropy (FA), we assessed differences in the integrity of 11 white matter aspects implicated in prior studies of major depression. We found that caregivers with subsyndromal depression had lower FA in tracts connecting to the posterior cingulate cortex (Cohen’s D=−0.9, p-value=0.006, FDR=0.03) and in white matter connecting the dorsolateral prefrontal cortex with the rostral cingulate (Cohen’s D=−1.2, p-value=0.0005, FDR=0.006). Thus, differences in the integrity of white matter (and related functions) reaching the posterior cingulate (autobiographical memory/planning) and connecting dorsolateral prefrontal and rostral cingulate regions (emotion re-appraisal) may contribute to depression vulnerability in dCGs. These observations require contextualizing further (e.g., assessing roles of depression history and other risk factors) for their meaning to be fully elucidated. Potentially, relationships between known risk factors (e.g., subjective stress) and depression emerge from or drive changes in white matter.

**CARDIAC MYBP-C IN C57BL/6 MICE: THE EFFECTS OF AGE**

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Aging is a known contributor to cardiovascular dysfunction. It is well-established that with age there are functional changes in the heart; yet, the proteins responsible for maintaining sarcomere integrity are not well understood during the aging process. A key protein, cardiac myosin binding protein C (cMyBP-C), contributes to the structural integrity and the regulation of actomyosin interactions. To date, little is known about the effects of aging on cMyBP-C. Therefore, the first step in evaluating this sarcomere protein was to determine the expression of cMyBP-C in cardiac tissue across the lifespan. Using ten C57BL/6 male mice per age group (adult (6-7 months), old (22-25 months), and very old (≥29 months)), body and heart mass were determined. Next a portion of the cardiac tissue was homogenized, and protein concentration was determined (BCA assay). The protein samples were probed for cMyBP-C with MYBPC3 (Abcam, #ab133499) by Western Blot. One-way ANOVA was performed to evaluate differences between groups. Results indicated there was an increase in heart mass with age, but relative to body weight there was no significant difference between the three age groups. Western blot analysis revealed no significant age-related difference in the expression of cMyBP-C. Although there was no change in expression levels, it is not possible to rule out cMyBP-C as a contributor to age-related cardiac dysfunction because phosphorylation is known to play a critical role in the function of cMyBP-C. Thus, further investigation of the phosphorylation status of cMyBP-C is needed and is ongoing.

**EXAMINING COMMUNITY-BASED SERVICES DISCONNECTS IN LATE OLD AGE: PATHS FOR REACH THROUGH THE COMMUNICATION ECOCOLOGY**

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As potentially eligible recipients continue to increase in number, understanding service system utilization and barriers can help ensure very old adults can access support from their communities when needed. A communication disjuncture between seniors and community-based service providers was revealed through a multi-year, county-wide older adult needs assessment utilizing data from 1,870 individuals. In response, officials convened a post assessment team that formed the three-person Community Advisory Group (CAG, all ≥69 years) who participated in this community-based participatory research (CBPR) study. This applied, qualitative study, guided by an ecological health communication research framework, conducted multilevel examinations of interactions among older adults and their social environment. Twenty in-depth, face-to-face, semi-structured interviews (mean = 82.5 years) were conducted based on a critical threshold of understanding achieved via researcher immersion in the community preceding this study, data collected, and CAG insight revealed through collaborative analysis. Communication Infrastructure Theory helped to reveal how participants’ diminishing social network interrelated with the communication environment acted to impede connections to services. In addition to utilization impediments, enabling elements of the communication infrastructure were identified so those resources might be leveraged to bridge the senior-provider divide. Findings from this study suggest new outreach approaches for connecting to older adults through their communication ecology. The findings add to the growing convergence of evidence that calls for improved communication with older adults to minimize poor inter-actions that hinder accessing resources that may enhance their social, emotional, and physical well-being.

**UNDERSTANDING DEMENTIA PREVALENCE AND HEALTH CARE USE PATTERNS IN RURAL NORTH CAROLINA**

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Rural and remote communities have limited access to high quality dementia care, prompting a need for innovative