using data from the MHAS Cognitive Aging Ancillary Study. Using data from the Colombian Survey of Health, Well-Being, and Aging (SABE-Colombia), Ailshire examines variation in biological risk across key subgroups of the population. Osuna uses data from the Colombian National Quality of Life Survey (ENCV) to determine if social and economic inequalities are reflected in unequal health and well-being among older adults. Results highlight which Latin American populations have increased risk for poorer health, which merit further research and policy attention. The findings highlight the importance of understanding health and well-being in the rapidly growing older adult populations of Latin America.

BIOMETICAL RISK PROFILES IN THE OLDER MEXICAN POPULATION

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Research examining biological risk is critical given that both the Mexican and U.S. populations are aging. Biomarkers can help us understand underlying disease patterns among Mexican-origin individuals in Mexico and the U.S. to help inform disease-prevention efforts for these populations. Using data from the 2012 Mexican Health and Aging Study and the 2010/2012 Health and Retirement Study, we examine seven biomarkers known to predict health risk: systolic and diastolic blood pressure, pulse rate, total cholesterol, HDL cholesterol, glycosylated hemoglobin, and C-reactive protein. Logistic regression models, controlling for age and sex, are used to predict high-risk for each biomarker among Mexico-born Mexicans, Mexico-born Mexican-Americans, and U.S.-born Mexican-Americans. Results show that Mexico-born Mexicans exhibit higher biological risk for systolic blood pressure, pulse rate, low HDL cholesterol, glycosylated hemoglobin, and inflammation than Mexico-born and U.S.-born Mexican-Americans. Additionally accounting for socioeconomic status and health behaviors did not explain differences in high-risk among Mexican-born Mexicans.

ENVEJECIMIENTO Y ESTRATOS: SOCIOECONOMIC INEQUALITY IN AGING IN COLOMBIA

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Colombia has the highest level of income inequality among Latin American countries, which likely translates into disparities in the aging experience. This study uses data on adults ages 60 and older from the 2017 National Survey of Quality of Life to examine socioeconomic stratification in physical health and psychological well-being. Colombians are assigned to estratos that reflect their residential location as well as social and economic position. Compared to those in the lowest estrato, older adults in the middle and high estratos are less likely to report having sensory impairment or difficulty with daily activities. They are also 1-2 times more likely to report feeling happy and calm. Those in the highest estratos are less likely to report feeling worried. Results suggest there is tremendous variation in the aging experience across socioeconomic strata and that older adults in the lowest strata are particularly disadvantaged with respect to health and well-being.

THE DIRECT AND INDIRECT EFFECTS OF EDUCATION ON LATE-LIFE COGNITIVE ABILITY IN MEXICO

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Education and cognitive ability are closely associated. Less is known regarding mechanisms of this association. We evaluate direct effects of education on cognition and indirect effects through health and socioeconomic status (SES) in Mexico. We analyze adults age 50+ from the 2016 Mexican Cognitive Aging Ancillary Study (n=2,042). We constructed latent variables of visual and verbal cognitive abilities. Using structural equation modeling, we estimated direct effects of education on cognition and indirect effects through SES (income and wealth), and health (chronic conditions and health behaviors). Small, yet statistically significant, indirect effects of education on cognition through income, wealth, and stroke (for visual ability) and through stroke (for verbal ability) were observed. However, the majority of the association between education and cognitive ability (90% and 96% for visual and verbal cognitive ability, respectively) was not explained by SES or health. Interventions to reduce disparities in late-life cognitive ability should address educational disparities in early-life.

VARIATION IN BIOLOGICAL RISK AMONG OLDER COLOMBIANS BY AGE, GENDER, AND EDUCATIONAL ATTAINMENT

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Recent rapid aging in Colombia raises questions about the health status of older adults, but there has been very little research in this population. This study examines variation in biological risk by age, gender, and educational attainment using data from the 2015 SABE-Colombia, a nationally representative survey of Colombians ages 60 and older. Levels of cholesterol (total, HDL, and LDL), triglycerides, glucose, and hemoglobin were measured from whole blood and clinical cut-points were used to determine high-risk on each indicator. The five metabolic indicators were summed to create a total risk score; 58% of older adults had a score of 1 or more. Those ages 80 and older and women had lower risk, as did those with at least primary education. These patterns were also observed for high-risk on hemoglobin (13% prevalence), an indicator of anemia. Most older Colombians have some biological risk, but this varies by key subgroups.

SESSION 4005 (PAPER)

CHRONIC DISEASE AND MULTIMORBIDITY MANAGEMENT

ENGAGEMENT AND EFFECTIVENESS OF USING MOBILE APP FOR DIABETES SELF-MANAGEMENT AMONG OLDER ADULTS

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Mobile health applications (app) have shown to be beneficial for chronic disease management. However, few studies assessed older adults’ engagement in tracking self-management activities with app functions and effectiveness on improving their diabetes outcomes. This study investigated tracking patterns of each app function (blood sugar, blood pressure, diet, exercise, medication adherence etc.) in a graphic-based aging-friendly diabetes self-management app (IMTOP app) and associated the patterns with changes in HbA1C, self-care behavior, diabetes empowerment, and health promotion. The sample included 334 community-dwelling older adults with type 2 diabetes in Taiwan (mean age 64.57 ± 6.64 years) participated in the IMTOP training course that designed to motivate and train older adults with diabetes to use mobile tablets and apps. We performed trajectory analyses using SAS TRAJ procedure to identify distinct classes of individuals following similar longitudinal patterns on absence or presence of weekly app use for each individual app function. The relationships between the app engagement class memberships and 4- and 8-month diabetes health outcomes were assessed using an econometric regression analysis approach. The results showed the degree of app engagement on any single function was significantly and positively correlated with diabetes self-care scale scores (all p < .05). Only the engagement on the blood sugar function had statistically significant association with HbA1c improvements (p < .05). The app use was not associated with diabetes empowerment or health promotion. The study findings suggest any app function engagement significantly improved older adults’ overall self-management but blood sugar tracking is critical to improve HbA1c.

INCREASED PHYSIOLOGICAL VARIABILITY PREDICTS DECLINING HEALTH AND CRITICAL TRANSITIONS IN HEMODIALYSIS PATIENTS

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Increased variability in levels of several individual biomarkers has been shown to predict adverse outcomes, particularly in hemodialysis patients, for whom time series data is often available. Here, we evaluate the feasibility of using multivariate approaches to quantify global physiological variability as a potential predictor of adverse outcomes. We used data on 588 deaths and 1196 hospitalisations across ~38,000 visits of 591 hemodialysis patients at a Quebec hospital, as well as data on frailty and mortality in 580 patients assessed 20+ times within a one-year period at a hospital in Saitama, Japan. We use two approaches: principal components analysis (PCA) of the coefficients of variation (CVs) of the individual biomarkers over the previous year, and Mahalanobis distance (MD) of the biomarker profile relative to the same profile at the previous time point. We show that both methods provide substantial prediction of both impending mortality and impending hospitalisation, with hazard ratios above the 95% quantile range of the indices varying between 1.5 and 3.5 (p<0.0001). Each unit change on the first PCA axis (PC1) increased frailty odds by 2.34 (95% CI: 1.21-4.52). PCA performed substantially better than MD. CVs of various biomarkers were consistently positively correlated, and PC1 was a good predictor of frailty, mortality, and hospitalisation. Overall, these results confirm that complex physiological integration can break down, resulting in loss of homeostatic control and increasing variability, as predicted by complex systems theory. The resulting indices provide a predictive signal of impending critical health transitions, with both theoretical and clinical implications.

MULTIMORBIDITY PATTERNS ARE DIFFERENTLY ASSOCIATED WITH DEPRESSION IN MIDDLE-AGED AND OLDER CHINESE

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The associations of multiple physical conditions with depression are still unclear. This study examined the relationship between physical multimorbidity patterns and depression among middle-aged and older Chinese. Patterns of physical multimorbidity were identified using Exploratory Factor Analysis (EFA) among 21,933 participants ≥ 45 years from 2011 to 2015. Multiple logistic regressions were performed to assess the associations between multimorbidity, multimorbidity patterns (factor scores) and depression for each age group (45-60 years vs. 260 years). The overall prevalence of multimorbidity was 40% and it was higher among participants with depression (54%) than those without depression (33%). Middle-aged (OR: 1.45; 95%CI 1.16–1.80) and older (OR: 1.85; 95%CI 1.62–2.11) adults with multimorbidity were more likely to have depression compared with those without multimorbidity. Five multimorbidity patterns were identified: cardio-metabolic, respiratory, splanchnic, cardio-cerebrovascular, and tumor-degenerative. Middle-aged participants with higher respiratory pattern score had a higher odds to have depression (OR: 1.59; 95%CI 1.15–2.21). Among older adults, higher cardio-metabolic pattern score was significantly associated with lower odds of depression (OR: 0.78; 95% CI 0.63–0.97), while higher respiratory (OR: 1.32; 95%CI 1.04–1.68), splanchnic (OR: 1.22; 95%CI 1.01–1.47) and tumor-and-degenerative pattern scores (OR: 1.86; 95%CI 1.42–2.43) were all found to be significantly associated with higher risk of depression. The associations between physical multimorbidity patterns and depression differ by age. Future studies are needed to investigate the temporal nature of how physical multimorbidity patterns may induce depression and the underlying mechanisms.

TRANSLATING RESEARCH TO PRACTICE: USING CHANGE MODEL TO IMPROVE SUSTAINABILITY OF HEALTH ALERTS FOR CHRONIC ILLNESS

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Chronic illness is the primary reason for hospitalization and rehospitalization in the US today. Nearly 1/3 of older