and even negative relationships. The present study seeks to address this inconsistency in findings by examining three possible sources: 1) different indicators of emotional complexity, 2) age differences in emotional dynamics (individual differences in means & variability of momentary positive & negative emotions), and 3) differences in cultural backgrounds. Community-dwelling adults from Vancouver (96 older adults, 51 young adults; 56% of Asian heritage, 30% of Caucasian heritage, and others 14%) and in Hong Kong (56 older adults, 59 young adults; 100% Asian heritage) completed approximately 30 ecological momentary assessments over a 10-day period assessing their current emotional experiences. When the mean and variability of emotional experiences were controlled for, most emotional complexity measures showed a negative relationship with age indicating that older adults displayed lower emotional complexity compared to young adults. This pattern was consistent across participants of Asian and Caucasian heritage. Additional analyses will explore the link between different emotional complexity measures and well-being indicators. Our findings point to the need to provide a more nuanced perspective on the correlates and consequences of emotional complexity in old age.

FORECASTING INDIVIDUAL AGING TRAJECTORIES AND SURVIVAL WITH AN INTERPRETABLE NETWORK MODEL

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We have built a computational model of individual aging trajectories of health and survival, containing physical, functional, and biological variables, conditioned on demographic, lifestyle, and medical background information. We combine techniques of modern machine learning with a network approach, where the health variables are coupled by an interaction network within a stochastic dynamical system. The resulting model is scalable to large longitudinal data sets, is predictive of individual high-dimensional health trajectories and survival, and infers an interpretable network of interactions between the health variables. The interaction network gives us the ability to identify which interactions between variables are used by the model, demonstrating that realistic physiological connections are inferred. We use English Longitudinal Study of Aging (ELSA) data to train our model and show that it performs better than standard linear models for health outcomes and survival, while also revealing the relevant interactions. Our model can be used to generate synthetic individuals that age realistically from input data at baseline, as well as the ability to probe future aging outcomes given an arbitrary initial health state.

SOCIAL CHARACTERISTICS, HEALTH AND MORTALITY AMONG MALE CENTENARIANS USING VETERANS AFFAIRS (VA) HEALTHCARE

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Studying health and mortality among centenarian Veterans is critical to understanding the limit of the male human life span and Veterans' extraordinary model of successful aging. The majority of VA users are male, but little is known about social characteristics and health among male centenarians in general. We investigated the annual mortality rate of male centenarian Veterans seeking care from the VA and identified social characteristics and health conditions that influenced the risk of mortality. This longitudinal study used VA Electronic Health Record (EHR) data from 1997 – 2012 (n=1858). Dates of death were obtained from the EHR, aggregated by the Corporate Data Warehouse from multiple sources. Independent variables included age, race, marital status, and periods of military service. Health conditions consisted of cancer, congestive heart failure (CHF), diabetes, chronic renal disease, chronic pulmonary disease, peripheral vascular disease, dementia, myocardial infarction, liver diseases. The mean age was 100.4 (range: 100-115), 76% were white and 49% married. The average annual mortality rate was 32 per 100 person-years. The annual mortality rate was stable and not affected by race, but did differ by marital status. Divorced or separated centenarians had a 21% higher rate of death than married centenarians [Hazard Ratio (HR):1.21, 95% CI 1.07 - 1.36]. A diagnosis of dementia increased the mortality risk by 37% (HR: 1.37, 95% CI: 1.04 - 1.81) and CHF by 37% (HR: 1.37; 95% CI: 1.13 - 1.66). Providers should consider prevalent health conditions, as well as marital status, in managing care of centenarian veterans.

THE FRAILTY INDEX, MISSING DATA, AND IMPUTATION

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The frailty index (FI) is a summary measure of health during aging that is defined by the average number of 'things wrong', i.e. health deficits, across a sundry of lab, clinical, and questionnaire measurements. Missing data are ubiquitous in aging studies. Although the FI appears to have robust predictive power—even when ignoring missing data, there has not been a systematic study of the consequences of imputation when used in the principle investigation. We investigated the standard imputation methodology, multiple imputation using chained equations (MICE), and other missing data methods, in terms of prediction of mortality and statistical power using the 2003/04 and 2005/06 NHANES datasets. When we masked known data completely at random, we observed that available case analysis incorrectly estimated the true variance of the FI leading to potential problems in hypothesis testing, whereas imputation helped mitigate this effect. We also observed that the default imputation methods from MICE showed a significant increase in FI relative to the ground truth together with a decrease in predictive power, hence we suggest other options when performing imputation with NHANES. The underlying missing mechanism in NHANES is not random and appears to be important, for example survival curve analysis showed that the top half of patients with the most missing data died significantly younger than the bottom half.