STAR CAREGIVERS: VIRTUAL TRAINING AND FOLLOWUP: IMPLEMENTATION

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STAR Caregivers is an evidence-based intervention designed to reduce caregiver burden for caregivers of people living with dementia. This study translated the paper-based, face-to-face intervention into a 6-session, self-directed online learning program supported by 6, 30-minute telephone calls with a clinically trained coach. Our approach is designed to overcome issues of access to training. Eligible caregiver-patient dyads at Kaiser Permanente Washington were identified automatically via electronic health records. Qualitative interviews were conducted with a sample of patients to elicit information about their needs and preferences for training. We developed a "learning management system" (analogous to compliance training modules) complete with slides, voice-over narration, and testing. The training sessions are mounted on the KP Learn site and accessible to anyone. Baseline and outcomes data on standardized instruments are collected remotely via REDCap. Recruitment for the study is ongoing and initial participant feedback on the program is very positive.

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AIR POLLUTION EXPOSURE IS ASSOCIATED WITH COGNITIVE PERFORMANCE: RESULTS FROM THE EINSTEIN AGING STUDY

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Prior research has established that those exposed to higher levels of fine particulate matter (PM1, PM2.5) air pollution have higher levels of accumulated amyloid-beta (Aβ) and tau in frontal cortex at autopsy, higher error rates on cognitive function assessments, and lower scores on memory and both verbal and non-verbal intelligence assessments. We explored the relationship between regional air quality monitoring measures (EPA AirData) and baseline cognitive performance of 312 older adults, from the Einstein Aging Study (EAS, NIA P01AG003949). Participants completed neuropsychological assessments at baseline and each followup wave (i.e., delayed free recall and total recall; Trails A & B, Digit Symbol substitution task (DSST), MoCA). For each participant, based on their zipcode, we computed average PM2.5 exposure at various exposure windows (1-15, 30-60, 60-90, 90-120 days prior to baseline). Adjusting for age, education, and gender across all models, mean of daily particulate matter exposure at various exposure windows (30-60, 60-90 days) was significantly related to performance on the MoCA and Trails A & B, in expected directions (i.e., higher pollution, worse cognitive performance - more error, slower speed). Models with memory performance as the outcome indicated that only distant time horizons were related to memory performance (i.e., 60-90, 90-120 days prior). These findings suggest that particulate matter air pollution likely affects different cognitive domains at different timescales. This methodology cannot address contributions from indoor air quality and mobility - an exposure misclassification likely resulting in significant biases towards the null in the estimation of the effects of air pollution.

BLOOD PRESSURE VARIABILITY AND COMPLEXITY IN NURSING HOME RESIDENTS BEFORE DEATH

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Blood pressure (BP) is a complex dynamic system in the human body and an important determinant of healthy aging. Exploring BP as a dynamic data system may provide important insights into how BP patterns can provide complementary information to the static, one-time BP measurements that are more commonly used for clinical decision making. Thus, we sought to describe BP as a dynamic data system in older adults nearing death. Using a prospective cohort study design, we assessed BP measures 6 months before death in Veterans Health Administrative nursing home residents between 10/1/2006 and 9/30/2017. Variability was characterized using standard deviation and mean square error after adjusting for diurnal variations. Complexity (i.e., amount of novel information vs. redundancy) was examined using Shannon's entropy (bits). Generalized linear models were used to examine factors associated with overall BP variability. We identified 17,953 patients (98.0% male, 82.5% White, mean age 80.2 years, and mean BP 125.7/68.6 mmHg). In the last 6 months of life, systolic BP decreased slightly ($\square$-7.2mmHg). Variability was stable until the last month of life, at which point variability increased by as much as 30%. In contrast, complexity did not change in the 6 months before death ($\square$0.02 bits). Factors associated with BP variability before death include hospitalizations, hospice care, and medication changes. Systolic BP decreases in the last 6 months before death, and BP variability increases in the last month of life. Further, the increase in BP variability may be driven by increasingly complex care patterns as one approaches death.

NOVEL POSITIONAL AND BIOLOGICAL CANDIDATE GENE FOR GRIP STRENGTH IN OLDER ADULTS: THE LONG LIFE FAMILY STUDY

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