provides a personalized approach to teach care partners (CPs) strategies to manage BPSD. To understand the relationship between BPSDs and costs, weekly surveys were administered to CPs (n=12). Surveys asked about out-of-pocket costs incurred from: hospitalizations and emergency department (ED) utilization, primary care visits, use of paid in-home care, prescription drugs, and over-the-counter medications. The most frequent cost reported by CPs was prescription drug related (11 CPs), while costs associated with hospitalizations and ED were the least frequently reported (4 CPs). A longitudinal weekly survey-based approach to quantify CP costs is a novel approach examined an intervention outcome (cost) that matters to families and policymakers.

SESSION 4800 (SYMPOSIUM)

NOVEL BEHAVIORAL INTERVENTIONS TARGETING COGNITIVE-MOTOR NEUROPLASTICITY IN OLDER ADULTS
Chair: Tanvi Bhatt Co-Chair: Susan Hughes Discussant: Susan Hughes

Comparatively little is known about the ability of physical activity to improve or maintain cognitive function in older adults. Our Midwest Roybal Center uses social/behavioral theory to promote engagement in physical activity in order to improve this outcome. In 2019, we received funding to establish a Multimodal Connectomics Core that enabled investigators to examine concurrent changes in cognitive function and brain connectivity by providing access to fMRI imaging. The Connectomics Core enabled investigators for the first time to examine cognitive function and changes in brain connectivity simultaneously by providing access to fMRI imaging as well as MRI data storage and data analysis. It enabled measuring of standardized participant outcomes selected from the NIH toolbox. This Symposium describes findings from the first three completed pilots and discusses their implications for the field. The first pilot by Bronas examined effect of a 6-month home-based walking program in people chronic kidney disease on cognitive function and intervention induced neuroplasticity compared to usual care. The second pilot by Marquez adapted the Fit & Strong! program to test the combined impact of physical activity and interactive health education for managing mood on cognitive function among older adults with depression. The third pilot by Bhatt examined the effectiveness of 4 weeks of exergaming combined explicit cognitive training on behavioral measures of fall-risk (physical and cognitive) and their associations with brain integrity measures. The discussant will initiate discussion based on outcomes of these pilots and future directions for developing them into larger studies or clinical translation.

DUAL-TASK TRAINING FOR IMPROVING COGNITIVE-MOTOR INTERFERENCE
Tanvi bhatt1, and Lakshmi Kannan2. 1. University of Illinois at Chicago, Chicago, Illinois, United States, 2. University of Illinois at Chicago, Chicago, Illinois, United States

Dr. Bhatt will discuss the differences in types of cognitive motor interference patterns experienced for different tasks (gait and volitional versus reactive balance) in cognitively intact versus people with mild cognitive impairment. She will discuss the effectiveness of dual-task training and exergaming on gait, volitional and reactive balance control in older adults with mild cognitive impairment. After 4 weeks of such training, the results showed beneficial effects on improving volitional based performance when performed with a cognitive task (i.e., spatial memory and executive function) and had significant improvement in NIH toolbox (cognitive- increased working memory, episodic memory and executive function, and motor-increased gait speed). However, its positive effects on dual task reactive balance control were limited. Additionally, the speaker will go on to discuss the associations of balance control deficits in mild cognitive impairment with neural correlates (structural and functional brain integrity) to understand the attributing factors to increased fall risk in people with mild cognitive impairment.

ENHANCING WELL-BEING THROUGH EXERCISE DURING OLDER AGE
David Marquez, University of Illinois Chicago, Chicago, Illinois, United States

Dr. Marquez’s Roybal pilot Enhancing Well-Being Through Exercise During Older Age piloted an adaptation of a group exercise evidence-based program for people with arthritis symptoms, Fit & Strong!, that included education on emotional wellbeing and mental health. The pilot used a waitlist design to test the 8-week program among Black residents reporting depressive symptoms living in a senior housing facility. A battery of physical, emotional, and cognitive outcomes were collected pre and post intervention and a subset of participants (n=11) received MRIs pre and post. The sample included 28 participants (n=13 intervention, n=15 waitlist) who had a mean age of 69.8, were 89% female, reported a mean of 3.6 chronic conditions, and an average WOMAC pain score of 5.7 (moderate pain). Though under-powered, analyses show greater improvements in key physical activity and cognitive domains among the intervention group compared to the waitlist group.

EFFECT OF A 6-MONTH HOME-BASED WALKING PROGRAM ON COGNITIVE FITNESS IN OLDER ADULTS WITH CHRONIC KIDNEY DISEASE
Ulf Bronas, University of Illinois Chicago, Chicago, Illinois, United States

We have previously demonstrated that cognitive status and white matter integrity are highly associated with physical fitness in older adult patients with chronic kidney disease (CKD). We present data from a two group RCT determining effect of a 6-month home-based walking intervention on physical and cognitive fitness compared to usual care. The intervention included use of a wearable activity monitor, weekly didactic phone meetings, interactive tools and monthly coach-delivered feedback. The intervention group had a 78% compliance rate to the 6-month exercise
program (159.9 (149.2) minutes/week). Executive function composite score and global cognitive for intervention group > than control group. Additionally, global white matter integrity and functional connectivity improved in the intervention group and declined in the usual care group. We conclude that a home-based physical activity intervention can have significant improvement on cognitive health and neuroplasticity in older adults with CKD and lowering their risk of developing AD/ADRD

SESSION 4810 (SYMPOSIUM)

NOVEL GENOMIC AND EXCEPTIONAL LONGEVITY FINDINGS FROM THE LONG LIFE FAMILY STUDY
Chair: Mary Wojczynski Co-Chair: Nancy W. Glynn
Discussant: Evan Hadley
The Long Life Family Study (LLFS), funded by the National Institute on Aging, is an international collaborative study of the genetics and familial components of exceptional longevity and healthy aging. We phenotyped 4,953 individuals from 539 two-generational families (1,727 proband; 3,226 offspring) at baseline (2006-2009). A second visit (2014-2017) was conducted for 2,904 (478 proband; 2,426 offspring) participants. The longitudinal, comprehensive in-person visits measured domains of healthy aging, including physical performance, cognition, and blood markers. Extensive genetic analyses were performed using the baseline blood draw, including genotyping with the Illumina 2.5M Human Omni array, linkage analyses with the families, whole genome sequencing using the TopMED protocol, and metabolomic assays. Collectively, this symposium will present novel findings that examined differences in end of life events and cause of death between non-exceptional and exceptional long-lived women, elucidate potential rare variants associated with exceptional longevity, and examine new potential metabolomics pathways involved in gait speed and cardiovascular disease. Specifically, Dr. Galvin will share results from three Danish nationwide studies (including LLFS) on different end of life events in long-lived female siblings. Then, Dr. Gurinovich will share findings on new uncommon variants associated with extreme longevity. Next, Dr. Kuipers will discuss associations between lipid metabolomics and vascular health. Lastly, Dr. Santanasto will discuss lipid metabolomics associated with lower odds of slow gait speed. Dr. Evan Hadley, NIA, will be the discussant and will share insights and propose future directions for LLFS.

END-OF-LIFE EVENTS AND CAUSES OF DEATH IN DANISH LONG-LIVED FEMALE SIBLINGS
Angeline Galvin1, Svetlana Ukraintseva2, Konstantin Arbeev2, Mary Feitosa3, Anne Newman4, and Kaare Christensen5, 1. University of Southern Denmark, Odense, Syddanmark, Denmark, 2. Duke University, Durham, North Carolina, United States, 3. Washington University, St Louis, Missouri, United States, 4. University of Pittsburgh, Pittsburgh, Pennsylvania, United States, 5. Southern Denmark University, Odense, Syddanmark, Denmark

Long-lived siblings have better health and survival compared to “sporadic” long-lived individuals, but it is unknown whether they also differ in end-of-life events and causes of death. Deceased Danish long-lived female siblings (n=833, mean age at death=95.6) were identified through national health registers compared to controls matched on sex, year-of-birth, and year-of-death. End-of-life events (hospitalizations, emergency room visits, medication within the five years before death) and causes of death were analyzed using linear models with fixed effects and multinomial logistic models, respectively. End-of-life events and causes of death were not statistically significantly different between long-lived female siblings and “sporadic” long-lived individuals. However, long-lived female siblings presented non-significant higher risk of ischemic heart disease and cancer – and lower risk of mental diseases and accidents. The analyses will be extended to include men, a longer follow-up, and focus on dementia in the last years of life.

GENOME-WIDE ASSOCIATION STUDY OF EXTREME LONGEVITY USING WHOLE-GENOME SEQUENCING DATA
Anastasia Gurinovich1, Harold Bae1, Zeyuan Song1, Anastasia Leshchyk1, Mengze Li1, Stacy Andersen2, Thomas Perls3, and Paola Sebastiani1, 1. Tufts Medical Center, Boston, Massachusetts, United States, 2. Oregon State University, Corvallis, Oregon, United States, 3. Boston University, Boston, Massachusetts, United States, 4. Boston University School of Medicine, Boston, Massachusetts, United States

Extreme longevity (EL) runs in families which supports the hypothesis that this is a genetically regulated trait. However, with the exception of APOE, genome-wide association studies (GWAS) of EL have not identified many genetic variants that replicate in independent studies. The majority of GWAS of EL have used imputed genotype data. Recently, the Long Life Family Study has generated the largest whole-genome sequencing data of centenarians and matched controls. We perform single-variant and gene-based tests of EL in these data using the nf-gwas pipeline with the saddle point approximation adjustment of the p-values. These analyses suggest that, in addition to the APOE/TOMM40 region, some uncommon variants of GRM7 (chr3), AUTS2 (chr7), KIF13B (chr8), SLC2A14 (chr12), and ADCY9 (chr16) genes, and other intergenic SNPs in chromosomes 5, 10, and 20 may be implicated with EL.

ASSOCIATION OF PLASMA LIPID METABOLITES WITH ANKLE-BRACHIAL INDEX IN THE LONG LIFE FAMILY STUDY
Allison Kuipers1, Ryan Cvejkus1, Bharat Thyagarajan2, Gary Patti1, Mary Feitosa3, Jonas Mengel-From4, Emma Barinas-Mitchell1, and Joseph Zmuda1, 1. University of Pittsburgh, Pittsburgh, Pennsylvania, United States, 2. University of Minnesota Twin Cities, MINNEAPOLIS, Minnesota, United States, 3. Washington University, Department of Chemistry, Genetics, and Medicine, St. Louis, Missouri, United States,