cognitive and sensory-motor considerations was a common problem, as was the ability to sustain attention during the training sessions. Recommendations for recruitment and retaining older adults in ALFs for these types of studies will be offered.

**PRISM 2.0: TECHNICAL CHALLENGES**

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PRISM 2.0 was designed to run on Android tablets and made use of both customized apps that relied on Google's browser and e-mail functionality as well as commercial apps, such as Microsoft's Skype for videoconferencing. We also made use of functionality provided by our partner AT&T, such as their sim cards to provide cell-based internet connectivity to participants who did not have access to Wi-Fi internet services to their home (cable, DSL), as well as tablet management software to deploy updates. The Miami site provided central management and tablet deployment and redeployment services and support as well as coordinating locally provided tech support at the three sites. We discuss some of the technical challenges associated with these arrangements. We focus on how changes to the operating system broke some of our apps necessitating substitution of other apps and provision of new training, and how Covid-19 affected technical support.

**TRAINING CHALLENGES FOR EFFECTIVELY IMPLEMENTING A TECHNOLOGY CLINICAL TRIAL: A SNAPSHOT FROM PRISM 2.0**

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Technology interventions can only be adequately assessed for efficacy if participants are adequately trained to use the technology. Only then can an evaluation be made about whether the technology intervention affects the outcome of interest. In the PRISM study, our goal was to teach inexperienced older adults to use either a tablet computer (control) or the PRISM 2.0 system. In this presentation we will discuss the training processes we used for both groups (e.g., segmenting sessions, providing homework, observations), to enable us to evaluate the relative benefits of PRISM for social connectedness. We will describe the training challenges and the need for assessors to be able to troubleshoot technology issues. We will evaluate individual differences in training success and drop-outs to provide insights for other technology intervention studies. Understanding these individual differences can provide guidance for the deployment of new technologies that may benefit health, social interaction, or cognitive engagement.

**CHALLENGES OF QUANTIFYING PRISM 2.0 AND TABLET USE**

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As with the PRISM 1.0 trial, an important outcome of the PRISM 2.0 trial is use of the PRISM system and use of the PRISM system compared to the control condition (a standard tablet without the PRISM software). Frequent use over time is an important measure of system success. Further, use data provide key measures of system usefulness and usability. What features do participants use most and how often? Within those features, what activities do they engage in? What are the patterns of use throughout the trial, and how does PRISM system use compare to the control condition? However, quantifying use is not an easy task. This talk presents the challenges of quantifying use of a complex, multi-faceted system, and of making meaningful comparisons in use between two very different systems. Analysis approaches and solutions are discussed.

**Session 3175 (Paper)**

**COGNITIVE AGING I**

**COGNITION-MORTALITY ASSOCIATIONS ARE STRONGER WHEN ESTIMATED JOINTLY IN LONGITUDINAL AND TIME-TO-EVENT MODELS**

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**Objectives:** With aging populations worldwide, there is growing interest in links between cognitive decline and elevated mortality risk—and, by extension, analytic approaches to further clarify these associations. Toward this end, some researchers have compared cognitive trajectories of survivors vs. decedents while others have examined longitudinal changes in cognition as predictive of mortality risk. A two-stage modeling framework is typically used in this latter approach; however, several recent studies have used joint longitudinal-survival modeling (i.e., estimating longitudinal change in cognition conditionally on mortality risk, and vice versa). Methodological differences inherent to these approaches may influence estimates of cognitive decline and cognition-mortality associations. These effects may vary across cognitive domains insofar as changes in broad fluid and crystallized abilities are differentially sensitive to aging and mortality risk.

**Methods:** We applied each of the above analytic approaches to data from a large-sample repeated-measures study of older adults (N = 5,954, of whom 4,453 deceased; ages 50–87 years at assessment).

**Results:** Cognitive trajectories indicated worse performance in decedents and when estimated jointly with mortality risk, but this was attenuated after adjustment for health-related covariates. Better cognitive performance predicted lower mortality risk, and, importantly, cognition-mortality associations were stronger when estimated in joint models.
Associations between mortality risk and crystallized abilities only emerged under joint estimation, confirming the greater power of this statistical approach.

Discussion: These results suggest that joint estimation of cognition-mortality associations may be beneficial for research in cognitive epidemiology and cognitive reserve in adult development.

EFFECTS OF HEALTH-PROMOTING LIFESTYLES IN MIDLIFE ON COGNITIVE FUNCTIONING IN LATER LIFE

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Maintaining cognitive function in later life is key to healthy aging because cognitive impairments compromise everyday functional abilities, impeding independent living. Numerous studies have discovered early life experiences and lifestyle behaviors over the lifespan to have substantial influences on cognitive functioning with age. Especially, subtle brain changes related to dementia occur as early as midlife, and lifestyle factors in midlife influence neuro-pathological development, suggesting that midlife is a critical period for preserving cognitive health in later life. This study investigated the association between lifestyle behaviors in midlife and cognitive performance in later life using 12-year follow-up data from the Korean Longitudinal Study on Aging (KLoSA). Cognitive function was assessed with the Harmonized Cognitive Assessment Protocol (HCAP) for KLoSA. Eight thousand respondents from the KLoSA sample were administered HCAP neuropsychological tests. Hierarchical multiple regression analyses were used to examine whether health-promoting lifestyles at baseline (2006) predicted cognitive function in 2018 after controlling for health-related covariates. We identified a positive influence of health-protective behaviors (non-smoking, moderate drinking, regular exercise, weight management, and health screening) at baseline on language abilities in 2018 ($\beta = .05$, $p < .05$). In addition, health-promoting behaviors covering interpersonal relationships, social engagement, optimistic outlook, and positive attitudes at baseline were predictive of language abilities ($\beta = .08$, $p < .01$), executive function ($\beta = .06$, $p < .01$), and the visuospatial ability ($\beta = .06$, $p < .05$) in 2018. This study highlights the importance of midlife health-promoting lifestyles in maintaining cognitive health in later life.

HAPLOGROUPS OF MITOCHONDRIAL DNA DIFFERENTIATE PATTERNS OF COGNITIVE CHANGE OVER 7 YEARS

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Mitochondrial DNA (mtDNA) may play an important role in Alzheimer’s disease (AD) and cognitive decline. A particular haplogroup of mtDNA (haplogroup J), has been observed more commonly in patients with AD than in cognitively normal controls. We used mtDNA haplogroups to predict change in cognitive performance over seven years. We hypothesized that haplogroup J would predict poorer cognitive function and steeper cognitive decline. We analyzed data from 140 cognitively normal older adults (age 65+) who participated in the University of Kansas Alzheimer’s Disease Center annual registry. We used factor analysis to create three composite scores (verbal memory, attention, executive function) from 11 individual cognitive tests. We performed latent growth curve modeling to describe trajectories of cognitive performance and change. We compared haplogroup H, the most common, to haplogroup J, the potential risk group. Results indicated haplogroup J carriers had significantly lower baseline performance ($B=-.049$, $p < .01$) and slower rates of improvement ($B=-.046$, $p < .05$) on tests of verbal memory compared to haplogroup H. For executive function, groups did not differ at baseline ($B=.065$, $p=.10$), but haplogroup J had slower rates of improvement ($B=-.097$, $p < .01$). There were no differences in attention across groups in performance ($B=.135$, $p=.10$) or change ($B=.01$, $p=.10$). Our results reinforce the important role of mtDNA in changes to cognitive function with aging and imply that the effects of haplogroup J may vary across cognitive domains. Future research should investigate the mechanisms by which mtDNA might affect performance on specific cognitive domains across haplogroups.

OLDER ADULTS’ ENGAGEMENT IN COGNITIVELY STIMULATING ACTIVITIES PRIOR TO THE PANDEMIC PREDICTS LONELINESS

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Loneliness, which may be more prevalent in older than younger adults, may lead to increased subjective cognitive decline and cognitive impairment may in turn predict perceived loneliness. COVID-19 physical distancing restrictions may exacerbate perceived loneliness, especially that experienced by older adults. The present study investigated whether self-reported cognitive abilities (i.e., executive functions) would predict loneliness during the COVID-19 pandemic. Younger (YA; n = 136, 18-35 years), middle-aged (MA; n = 126, 36-54 years), and older (OA; n = 171, 55-88 years) adults completed questionnaires assessing self-reported executive functions (EF) and perceived loneliness using the BRIEF-A and UCLA Loneliness scale respectively. Forty-nine of the 171 older participants partially completed a cognitive learning intervention, which has previously been found to increase EF. In the current study, age group did not significantly predict perceived loneliness. However, OA who participated in the prior intervention reported less loneliness than those who did not participate in the intervention. Additionally, OA who participated in the intervention and self-reported worse EF during the current study, also reported feeling lonelier than adults who did not participate in the intervention. Although results from our prior research found most OA who participated in the intervention improved their EF, the results from the current study suggest that it left them more susceptible to