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Stress is an important correlate of cognitive aging that manifests in everyday life. Infrequent trait-based stress measures may not be as sensitive to mild cognitive impairment (MCI) as ecological momentary assessments (EMA). We compared EMA to global trait-based stress measures in discriminating MCI. A sample of 248 adults from the Einstein Aging Study (Mage=77.33 years, SD=5.04; 68 with MCI) were prompted to report whether a stressor occurred and to rate the severity up to four times daily for 14 days. Global perceived stress and neuroticism were assessed at baseline. Although MCI status was unrelated to stressor frequency (p>.05), individuals with MCI appraised their daily stressors as more severe than cognitively intact participants (p=.03). No MCI-related differences emerged on global stress or neuroticism assessments (p>.05). Results suggest everyday stress markers may be more sensitive to differentiating MCI than global assessments and point toward their utility for early identification of pathological declines.

QUESTIONNAIRE-BASED EVERYDAY REACTION TIME: RELIABLE, VALID, AND UNOBTRUSIVE MEASURE OF COGNITION

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Experience sampling paradigms provide new opportunity for early identification of mild cognitive impairment (MCI). We investigated two research questions: (1) is time to complete a repeatedly administered survey (i.e., questionnaire-based everyday reaction time, q*bert) a reliable and valid measure of cognition? (2) does this measure distinguish MCI status? To answer these questions, we leveraged ecological momentary assessment (EMA) data from the Einstein Aging Study, where older adults (N=240) completed six daily surveys and cognitive assessments on smartphones over 14 days. Q*bert had good between-person reliability after two days (>11 EMAs) and excellent reliability from three to fourteen days. Q*bert moderately correlated with ambulatory cognitive measures of processing speed and memory binding (p'<.001) and was significantly slower in those with MCI (p < .001). We propose q*bert as a reliable, valid, and unobtrusive measure of cognition when ambulatory cognitive assessments are not feasible.

ACTIVITY DIVERSITY IN DETECTING AMBULATORY COGNITIVE DEFICITS

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We examined whether participating in various daily activities (i.e., activity diversity) is associated with cognitive deficits measured by smartphone-based tests. Older adults (n=235; 70-91yrs) completed surveys 6 times/day for 14 days reporting on participation in 11 different activities (e.g., volunteering, physical activity), followed by brief ambulatory processing speed (PS) and working memory (WM) cognitive assessments. Activity diversity score was calculated using Shannon’s (1948) entropy method. Individuals’ average ambulatory PS and WM across all assessments were categorized into tertiles (i.e., high/mid/low performance). Results from multinomial logistic regression suggested that a 1SD increase in activity diversity was associated with increased odds of being in the high (better) vs. low performance tertile in PS (OR=2.1, 95%CI=[1.21, 3.51], p=.008). Activity diversity was not associated with WM. Given that cognitive deficits in PS occur earlier in the cognitive impairment process, activity diversity may be a sensitive marker for detecting very early stages of impairment.

SESSION 5630 (SYMPOSIUM)

INNOVATIVE APPROACHES TO INCLUSIVE DESIGN FOR TECHNOLOGY TO SUPPORT AGING WITH DISABILITY: EXAMPLES FROM TECHSAGE

Chair: Tracy Mitzner
Discussant: Anne Ordway

Technology research and development often exclude older adults with disabilities from participating in the design process. As a result, technologies may not be useful or usable by older adults with diverse abilities. This symposium, featuring projects at the TechSAGE Rehabilitation Engineering Research Center, highlights ongoing efforts toward inclusive design, representing unique approaches to engage older adults with disabilities and their stakeholders in the research and development of technology supports. First, Mitzner et al., will describe the development of an online, group Tai Chi intervention, and the integral involvement of older adults with mobility disabilities, the exercise program developers, and technology partner in all steps of the process. Exploring the potential of voice-activated assistants, like Amazon Alexa, to support health management activities of older adults with mobility disabilities, Kadiyak et al. will present findings from a needs assessment of the target population and user testing in the lab and home environments. Koon et al. will present findings from a subject matter expert interview study with caregivers and medical professionals designed to identify the scope of activity challenges among people aging with long-term mobility and sensory disabilities that should be explored in more depth through our future interview study with the target population. Sanford et al., will describe a student design competition and hackathon that incorporates immersive experiences with people aging with disabilities to inspire innovative design concepts that respond to the needs of real people. NIDILRR Project Officer, Anne Ordway, will serve as the discussant.

USING INCLUSIVE DESIGN TO DEVELOP A TELE–TAI CHI INTERVENTION FOR OLDER ADULTS WITH LONG-TERM MOBILITY DISABILITY

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Tele-technologies may be able to increase access to evidence-based exercise interventions for adults aging with
long-term mobility disabilities. This population experiences substantial barriers in attending such programs in person, including lack of transportation to classes, inaccessible buildings where classes are held, and lack of appropriate modifications offered for this population of older adults. It is critical to overcome such barriers to ensure this population has an opportunity to receive the benefits of evidence-based programs. In this study we are translating an in-person evidence-based tai chi intervention, Tai Chi for Arthritis, to an online platform using videoconferencing software for those aging with long-term mobility disabilities. We will describe our approach of including users from the target population and industry representatives (videoconferencing software developer, Tai Chi for Arthritis program developer as well as local master trainer) in the adaptation of the intervention and present the key findings from doing so.

DIGITAL HOME ASSISTANT HEALTH APPLICATIONS FOR OLDER ADULTS WITH LONG-TERM MOBILITY DISABILITIES
Travis Kadylak,1 Roshanak Khaleghi,2 Kenneth Blocker,1 Saahithya Gowrishankar,1 Widy Ramadhani,2 Lyndsie Koon,3 Ramavarapu Sreenivas,1 and Wendy Rogers,1 1. University of Illinois at Urbana-Champaign, Champaign, Illinois, United States, 2. University of Illinois at Urbana-Champaign, Urbana, Illinois, United States, 3. University of Kansas, Lawrence, Kansas, United States

The aim of the current study was to evaluate the feasibility, usability, safety, and efficacy of digital home assistant health applications (e.g., meditation applications, medication reminders, hydration management) for older adults with mobility disabilities. We used a multi-pronged approach. First, we compiled, categorized, and assessed a list of commercially available health applications compatible with Amazon Alexa devices. We reviewed data from the National Health and Aging Trends Study and the ACCESS study to identify challenges that older adults with mobility disabilities face within the home. We also reviewed the literature on the acceptance and use of digital home assistant health applications by older adults. Lastly, we conducted user testing in a laboratory and in a home-simulation environment to assess usability of different health applications. Our results provide guidance for the implementation of digital home assistant health applications to support older adults with long-term mobility disabilities.

IDENTIFYING ACTIVITY SUPPORT NEEDS FOR INDIVIDUALS AGING WITH DISABILITY: SUBJECT MATTER EXPERT INTERVIEWS
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Technology designed to support aging-in-place for people with long-term disabilities begins with understanding the specific tasks that need support, and individual abilities, preferences, cultural practices, and privacy concerns. Such understanding is best achieved through a multi-method approach that includes direct, detailed assessments of representative users as well as individuals who work with or care for them. Our target users are people who identify as having a sensory or mobility impairment prior to the age of 50, including individuals aging with multiple sclerosis, late-onset hearing loss, and late-onset vision loss. In the present study, we are interviewing Subject Matter Experts (SMEs) to identify the scope of the challenges that should be explored in more depth. The SMEs include caregivers and medical professionals to identify challenges that the target populations experience in their everyday activities, advice about research adaptations, and recruitment ideas.

CREATING INCLUSIVE DESIGN EXPERIENCES THROUGH ENGAGING SENIORS WITH DISABILITIES IN STUDENT HACKATHONS
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Although voice-activated assistants (e.g., Amazon Alexa) have become smarter, faster, more personalized, and more ubiquitous, little is known about their potential to promote aging in place for people with disabilities. Partnering with Amazon’s Alexa team, a 2-month long design competition and hackathon was conducted to inspire college students to develop innovative voice-activated solutions to support successful aging with disabilities. This presentation will cover the specific inclusive experiences used to immerse student teams in the daily lives of the target population to ensure that design solutions responded to real needs of real people in real environments. These included: lectures on current research findings about the everyday needs and challenges of the target users as well as universal design approaches to solving those problems; a survey of individuals currently using voice-activated assistants to understand their benefits and potential uses; and providing target with Alexa-enabled devices and embedding them into the hackathon teams.

SESSION 5635 (SYMPOSIUM)

INTERDISCIPLINARY PERSPECTIVES ON AGING AT HOME ALONE WITH NEUROCOGNITIVE IMPAIRMENT
Chair: Laura Girling
Discussant: Patrick Doyle

Nearly 48 million individuals worldwide have a neurocognitive disorder with projections estimating that as many as 75 million may be afflicted by 2050. Although approximations vary, a substantial portion of those affected live in the community alone, accounting for up to one-third of cases. The true proportion of persons with neurocognitive disorders living alone in the community may be underestimated as dementias are often underdiagnosed and underreported. As the baby boom generation ages and trends towards nuclear families, geographic dispersion of families, and fewer children continue, the number of live-alone persons with neurocognitive impairment is anticipated to rise; creating increased potential for difficult, ambiguous circumstances involving the rights and needs of this population. Despite these trends, available information about this population remains limited. This symposium represents papers from social gerontology, bioethics, and policy; offering unique, but complimentary perspectives on live-alone persons with neurocognitive impairment. The four