

translation of the SLS in native English speaking older adults and are now beginning cultural/linguistic adaptation for further validation, and clinical translation for Spanish speakers. Mayo Test Drive's web-based platform captures all item-level data to allow future item level analysis and application of machine learning techniques.

Results: The broader aim of Mayo Test Drive is to provide infrastructure to include more tests, adaptations, and normative datasets to ultimately improve access and utility for diverse patient populations. Mayo Test Drive currently includes two measures: Stricker Learning Span (SLS), a novel learning and recognition memory test, and Symbols Test, an open access processing speed measure (Stricker et al., 2022; Wilks et al., 2022). The SLS was designed with consideration of learning principles from cognitive neuroscience to enhance detection of the early decline in learning observed in preclinical Alzheimer's disease (AD). The SLS uses computer adaptive testing to adapt task difficulty trial-by-trial (e.g., increasing word span) and uses a sensitive 4-choice format to test recognition memory for each word. The SLS underwent initial piloting in older females to determine psychometric properties, test-retest reliability, convergent validity with traditional measures, and criterion validity (e.g., neuroanatomical associations).

Conclusions: Further validation and normative data development in the Mayo Clinic Study of Aging is ongoing, with additional criterion validation assessed by comparing brain PET (amyloid and tau) biomarker positive vs. negative groups. The SLS is equivalent to an in-person memory measure (AVLT), and the Mayo Test Drive composite including SLS and Symbols is superior to an in-person global screen (Short Test of Mental Status, like the MMSE) in distinguishing biomarker +/- older adults. To adapt the SLS for other languages/cultures, we have added community-based components to development (e.g., cognitive interviewing, additional piloting). We are beginning data-driven linguistic and remote cognitive interviewing approaches to develop an adaptation of the SLS for Spanish speakers. This study involves virtual focus groups with native Spanish speakers from different backgrounds (e.g., countries of origin, multilingualism) to examine the test paradigm, instructions, and items. Following piloting of the adaptations, next steps include normative data collection and clinical implementation. Future

work involves in-person adaptation studies for lower/middle income countries including a collaboration with a Master's level psychology graduate program in Grenada, West Indies to complete cognitive interviewing and pilot work with community members and stakeholders.

Categories: Teleneuropsychology/ Technology

Keyword 1: diversity

Keyword 2: neuropsychological assessment

Keyword 3: cognitive functioning

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100 Hybrid Neuropsychology in practice: Preliminary data and future directions

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Objective: The dynamic transitions towards and away from digitizing mental health care services have put immense pressure on neuropsychology to develop a more technologically advanced approach to patient care. Consistent with this, neuropsychologists are faced with an increasing burden to rapidly learn novel techniques of administering digital and/or remote cognitive measures, which may not be sufficiently standardized and/or psychometrically validated. **Participants and Methods:** The Hybrid Neuropsychology model, which aims to provide a framework for the integration of digital tools in neuropsychological assessment, has been incorporated routinely in our clinical practice, and among diverse clinical populations in inpatient and outpatient settings.

Results: This talk aims to 1) provide a brief background on Hybrid Neuropsychology; 2) discuss preliminary findings from our ongoing studies implementing this approach in clinical populations; and 3) offer key insights gleaned from methodological, analytical, and practical perspectives.

Conclusions: Future work towards building a more integrative method of data collection and storage based on extant preliminary data will also be discussed.

Categories: Teleneuropsychology/ Technology

Keyword 1: cognitive functioning

Keyword 2: computerized neuropsychological testing

Keyword 3: psychometrics

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5 min. break

4:55 - 5:00pm Friday, 3rd February, 2023

Plenary F: Timing of Influences on Brain and Cognition: a Lifespan Perspective

Presenter: Kristine Beate Walhovd

5:00 - 6:00pm
Friday, 3rd February, 2023
Pacific Ballroom A

Abstract & Learning Objectives:

Brain and cognition vary and change markedly across the lifespan. I use magnetic resonance imaging and cognitive data to show that while general age trends can be identified in brain and cognition, there are great individual differences through life, and these are influenced by several factors, including at early life stages. Hence, in some respects, aging starts in the womb. Recognizing and understanding the impact of early relative to later stage factors on neurocognitive lifespan differences, changes and aging is a major challenge. Adequately meeting this challenge is crucial both to understand the mechanisms at work early in life, and to identify what and how residual variance may be affected by later life factors. Thus, knowledge of the timing of influences on brain and cognition along the lifespan is needed to develop realistic plans for prevention and intervention to optimize brain and cognition at different ages. I discuss how example factors such as prenatal drug exposure, birth weight, genetics, education, income, and “baseline” general cognitive ability, as well as cognitive training interventions relate to differences and/or changes in the human brain along the lifespan.

Example findings are drawn from the studies of the Center for Lifespan Changes in Brain and Cognition (LCBC), where we follow individuals ranging in age from 0 to 100 years. Our studies are in part linked to Norwegian registry data, including the Mother, Father and Child Cohort study (Moba), the Norwegian Twin Registry and the Medical Birth Registry. Linkage to registry data on normal variation of pre-and perinatal characteristics, as well as studies of groups with known early biomedical risk, such a prenatal drug exposure, enable investigation of the possible impact of neurodevelopmental factors on brain and cognitive function through the entire life course. I also discuss how genetically informed studies of brain and cognition sampling broader age spans may contribute to our understanding of the timing of influences. Selectivity of samples constitute a challenge to generalizability in all human research. I discuss how research across international databases can, beyond boosting power and detect consistency of effects, help us appreciate there are diverse associations of possible factors of influence on different groups. This is crucial, as we need to understand to what extent various factors’ association with brain and cognition are universal or cohort-specific, prior to mechanistic understanding. Thus, in this presentation, I will discuss how transdisciplinary, longitudinal, multi-method, and multi-cohort research can illuminate factors that may influence brain and cognition, and their potential timing, in a lifespan perspective.

Upon conclusion of this course, learners will be able to:

1. Recognize that differences in brain and cognition even at advanced age may reflect early life factors, rather than, or in addition to, differences in brain and cognitive change with age
2. Describe consistency as well as diversity of factors’ (such as SES) associations with brain and cognition across cohorts of different age and origin.
3. Evaluate differences in factors present early in life, including at birth (“different offset”) before attributing variance in brain and cognitive function to changes with age (“different slope”)

CE Workshop 11: The Cognitive Contraindications, Complications and Costs of Epilepsy Surgery