

language style will require both written materials and training of neuropsychologists and allies. Once core SLN materials are developed, these may be further localized for specific communities to contribute to acceptance and effectiveness. These general strategies will need modification to the specifics of each major language, writing system, and population. This will be particularly true for testing language functioning itself, a particular challenge for the SLN strategy. The SLN strategy will require empirical verification of its viability in each major language and population. Some may perceive SLN as neo-colonialist and culturally insensitive; this may be mitigated in part through diversifying the neuropsychology workforce, community-based research, piloting, focus groups, and localization of materials.

Results: Because this is a proposal and not yet a research project, prototype neuropsychological screening protocols for English-as-a-Second-Language and Spanish-as-a-Second-Language will be presented as examples.

Conclusions: Cultural and linguistic diversity present major challenges to providing equitable neuropsychological services to the world's population. Current neuropsychology resources are least accessible to major populations that may be most in need. The SLN strategy is not perfect or universal but may reach the next 1-2 billion underserved population

Categories: Cross Cultural Neuropsychology/
Clinical Cultural Neuroscience

Keyword 1: cross-cultural issues

Keyword 2: language: second/foreign

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Symposium 10: Information Processing Speed: Applications to Cognitive Rehabilitation after Multiple Sclerosis, Stroke, and Long COVID

1:45 - 3:15pm
Friday, 3rd February, 2023
Town & Country Ballroom C

Chair

Gitendra Uswatte
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Summary Abstract:

Objective. Slowed information processing is a common feature of several neurological disorders, including stroke, multiple sclerosis (MS), traumatic brain injury, and some manifestations of long COVID. These disorders affect and disable large numbers of adults. Slowed information processing is important to address because this basic cognitive capacity underlies several critical cognitive functions, including working memory and other aspects of executive function. K. Ball's laboratory has developed an intervention for improving information processing speed, known as Speed of Processing Training (SOPT), which has robust evidence of preventing cognitive decline in older adults without frank neuropathology. Application of SOPT to individuals with neurological disorders, however, has received little study. This symposium will feature discussion of the development and testing in older adults of SOPT by its founder Ball followed by presentation of trials of the first applications of SOPT to rehabilitation of cognitive impairment after MS (J. DeLuca), stroke (E. Taub), and long COVID (G. Uswatte). Notably, the studies presented by Taub and Uswatte feature SOPT in combination with a package of behavior change strategies designed to transfer gains from the treatment setting to everyday life. These strategies were adapted from the "Transfer Package" that the laboratory of Taub and Uswatte developed to enhance the real-world effects of physical rehabilitation for adults with stroke and which has evidence of producing structural remodeling of the brain.

Methods, Results, and Conclusions. Ball will describe the basic, vision science findings that underlie SOPT. Then, she will share results from a multi-site, randomized controlled trial (RCT; N = 2832) showing that, compared to a no-contact control group and a group that received memory training, speed of processing training significantly slows cognitive decline in older adults. Strikingly, 10-year and longer follow-up indicate that this training prevents motor vehicle accidents and the development of dementia. DeLuca will present data from a RCT (N = 84) in adults with MS showing that persistent improvements in information processing speed

take place after SOPT. Taub will share findings from a case series in adults with stroke testing Constraint-Induced (CI) Cognitive Therapy- a combination of SOPT with a form of the Transfer Package of CI Movement Therapy adapted for cognitive rehabilitation. Participants in this case series showed large increases in information processing speed and large improvements in performing instrumental activities of daily living (IADL) outside the treatment setting. Uswatte will share data from a pilot RCT (N = 9) of CI Cognitive Therapy in adults with persistent brain fog due to long COVID; preliminary findings show a large advantage for the experimental group in reduction of brain fog and improvement in IADL function outside the treatment setting. *Presenters and Format.* Panel members are leaders in their fields who can present effectively to a wide range of audiences. Each talk will have a 20-minute slot divided into 15 minutes for speaking and 5 minutes for answering questions. Ten minutes will be reserved for questions that remain at the end about any of the four talks and to accommodate any delays that may occur.

Keyword 1: information processing speed

Keyword 2: cognitive rehabilitation

Keyword 3: activities of daily living

1 Benefits of Speed of Processing Training in Older Adults

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Objective: Physical, sensory, and cognitive function are all related to successful aging, quality of life, and independence in older age. Decline in cognitive function, in particular, can create difficulty in many Instrumental Activities of Daily Living such as driving and other aspects of everyday function. Loss of driving competence can subsequently lead to depression, isolation, loss of independence and reduced quality of life. Results from a large randomized controlled trial investigating the long-term impact of Speed of Processing Training will be presented demonstrating the impact of such training on cognitive and everyday function. Speed of Processing

Training is an adaptive cognitive intervention administered on a computer that improves visual attention, and has been shown to enhance the connections needed for visual attention using task-driven and resting state fMRI.

Participants and Methods: The ACTIVE clinical trial recruited a volunteer sample of 2,832 community dwelling older adults between the ages of 65 and 94 years at six different field sites in six different states. This study evaluated the impact of three cognitive interventions targeted at improving cognitive and everyday function which served as contract control conditions for each other. Participants were randomly assigned to speed of processing training, reasoning training, memory training, or a no-contact control group. Follow-up testing was collected in person for ten years, and at twenty years final archival data was collected from the Departments of Motor Vehicles at each of the six field sites, as well as the Medicare/Medicaid data across the twenty years since enrollment. Outcomes included measures of cognitive function, measures of IADL (including crash involvement and driving cessation), and secondary outcomes of mobility (falls, driving habits, life space), quality of life, mortality and health conditions (from Medicare Records).

Results: Results will be presented with respect to everyday function including several longitudinal measures of mobility: number of miles driven per year and driving difficulty, rates of driving cessation, and crash involvement. Random effects modelling, cox proportional hazards, and rate ratios will be presented illustrating the positive impact of cognitive training on these outcome measures. In particular, Speed of Processing Training was found to sustain driving competence with respect to continued driving relative to other types of training, and to reduce the risk of crash involvement over ten years. Furthermore, decline in Speed of Processing was the only cognitive measure predictive of crash involvement longitudinally in the no-contact control group. Positive benefits were also observed for Health Related Quality of Life (HRQoL), and depression.

Conclusions: The ACTIVE clinical trial, among other studies, has demonstrated that cognitive training can have long-term positive benefit on the everyday abilities, quality of life, and continued independence of older adults.