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## 5 Cognitive Rehabilitation Using Teleneuropsychology. A Cohort Study in South America

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**Objective:** The COVID-19 pandemic has affected the continuity of cognitive rehabilitation (CR) worldwide. However, the use of teleneuropsychology (TNP) to provide CR has contributed significantly to the continuity of treatment. The objective of this study was to measure the effects of CR via the TNP on cognition, neuropsychiatric symptoms, and memory strategies in a cohort of patients with Mild Cognitive Impairment (MCI).

**Participants and Methods:** A sample of 60 patients (60% female; age: 72.4±6.96) with MCI according to Petersen criteria was randomly divided into two groups: 30 cases (treatment group) and 30 controls (waiting list group). Subjects were matched for age, sex, and MMSE or MoCA.

The treatment group received ten weekly CR sessions of 45 minutes weekly. Pre-treatment (week 0) and post-treatment (week 10) measures were assessed for both groups. Different Linear Mixed Models were estimated to test treatment effect (CR vs. Controls) on each outcome of interest over Time (Pre/Post), controlling for Diagnosis, Age, Sex, and MMSE/MoCA performance.

**Results:** A significant Group (Control / Treatment) x Time (pre / post) interaction revealed that the treatment group at 10 weeks had better scores in cognitive variables: memory (RAVLT learning trials p=0.030; RAVLT delayed recall p=0.029), phonological fluency(p=0.001),

activities of daily living (FAQ p=0.001), satisfaction with memory performance (MMQ Satisfaction p=0.004) and use of memory strategies (MMQ Strategy p=0.00), and a significant reduction of affective symptomatology: depression (GDS p=0.00), neuropsychiatric symptoms (NPIQ p=0.045), Forgetfulness (EDO-10 p=0.00), Stress (DAS Stress p=0.00).

**Conclusions:** This is the first study to test CR using teleNP in South America. Our results suggest that CR through teleNP is an effective intervention to improve performance on cognitive variables and reduce neuropsychiatric symptomatology compared to patients with MCI. These results have great significance in the context of the COVID-19 pandemic in South America, where teleNP is proving to be a valuable tool.

**Categories:** Teleneuropsychology/ Technology

**Keyword 1:** teleneuropsychology

**Keyword 2:** cognitive rehabilitation

**Keyword 3:** mild cognitive impairment

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## Paper Session 04: Multi-cultural and diversity topics in pediatric populations

11:45am - 1:15pm

Thursday, 2nd February, 2023

Pacific Ballroom E

Moderated by: Rowena Ng

## 1 Psychometric Characteristics of the Grenada Learning and Memory Scale: An Innovative Tool for Preschool Memory Assessment in Resource-Limited Regions

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**Objective:** Neuropsychological assessment of preschool children is essential for early detection of delays and referral for intervention prior to school entry. This is especially relevant in low- and middle-income countries (LMICs), which are disproportionately impacted by micronutrient deficiencies and teratogenic exposures. There are limited options for assessment of preschool learning and memory, developed and validated in resource-limited regions. The Grenada Learning and Memory Scale (GLAMS) was created for use in the Caribbean using an indigenous “ground-up” approach, with feedback from regional stakeholders at various stages of development. The GLAMS contains two subtests – a verbal list-learning task, which imagines a trip to the shop to buy culturally familiar items, and a face-name associative learning task using locally-drawn faces of Caribbean children. There are two versions: a 4-item version for 3-year-olds and a 6-item version for 4 and 5-year-olds. Here we present descriptive data and psychometric features for the GLAMS from an initial preschool sample.

**Participants and Methods:** Participants were recruited from a social-emotional intervention study (SGU IRB#14099) in Grenada between 2019-2021. Children were between 36 and 72 months of age, primarily English-speaking, and had no known history of neurodevelopmental disorders. Trained Early Childhood Assessors administered the GLAMS and NEPSY-II in public preschools and homes across Grenada. Exploratory descriptive statistics characterized participant sociodemographics and test score distributions. Spearman correlations, Mann-Whitney U, and Kruskal-Wallis tests examined the impact of sociodemographics on test scores. Internal reliability was assessed with coefficient alpha. NEPSY-II subtests were used to assess convergent validity, with the prediction that the highest correlations would be observed for NEPSY-II Sentence Repetition. Test engagement (as reflected by “zero-learning”, “some learning”, and “positive learning curves”) was assessed across each age bracket (in 6-month increments). We assessed and summarized barriers to engagement qualitatively.

**Results:** The sample consisted of 304 children (152 males, 152 females). Participants were predominantly Afro-Caribbean and Indo-Caribbean. Parent education and household income (Mdn=\$370-740 USD per month) were consistent with the general population. GLAMS internal consistency was reliable ( $\alpha=0.713$ ). There were age effects on list-learning ( $r_s=0.51$ ;  $p<0.001$ ), list recall ( $r_s=0.51$ ;  $p<0.001$ ), face-name learning ( $r_s=0.30$ ;  $p<0.001$ ), and face-name recall ( $r_s=0.25$ ;  $p<0.001$ ). There were gender effects on list-learning ( $p=0.02$ ) and list recall ( $p=0.01$ ) but not face-name learning or recall. All GLAMS subtests were correlated with NEPSY Sentence Repetition ( $r_s=0.22-0.34$ ;  $p<0.001$ ). There was sufficient sampling of males and females across all 6 age brackets. As age increased, a higher proportion of children showed a positive learning curve (and fewer “zero-scores”) on verbal learning ( $X^2=30.88$ ,  $p<0.001$ ) and face-name learning ( $X^2=22.19$ ,  $p=0.014$ ), demonstrating increased task engagement as children mature. There were various qualitative observations of why children showed “zero-scores”, ranging from environmental distractions to anxiety and inattention.

**Conclusions:** As far as we know, the GLAMS is the first preschool measure of learning and memory developed indigenously from within the Caribbean. It shows reliable internal consistency, expected age and gender effects and convergent validity. These initial results are encouraging and support continued efforts to establish test-retest and inter-rater reliability. Plans include validation in clinical samples, scale-up to other Caribbean countries, and eventual adaptation across global LMICs.

#### Categories:

Assessment/Psychometrics/Methods (Child)

**Keyword 1:** neuropsychological assessment

**Keyword 2:** test development

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**2 Effects of Early Exposure to More Than One Language in the Home on Language Skills and Brain Functional Network Organization in Young Children with Autism Spectrum Disorder**