EMA4Stroke – Psychometric Evaluation of a Task Battery for Ecological Momentary Assessment of Cognition after Stroke

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Background: Ecological Momentary Assessments (EMA) on mobile applications offer unique opportunities for capturing day-to-day cognitive performance in ecologically valid settings, potentially also for clinical populations such as stroke patients. Stroke patients often experience a range of sensory and cognitive impairments, particularly in the domains of memory, executive functioning, attention and speech (Mancuso et al., 2023). These domains also play a large role in the subjective experience of symptom severity and may specifically be targeted by rehabilitative aftercare. While clinical assessments capture an individual's cognitive status, day-to-day measurements are needed to provide cognitive indicators that capture naturally occurring cognitive fluctuations relevant to planning cognitive rehabilitation. Such indicators do not yet exist for the case of stroke.

Methods/Results: We have developed an EMA task battery focusing on the cognitive domains of executive functioning, memory and attention. Based on stationary assessments of currently *N*=134 stroke patients (age range 18-91 years, patients with stroke in the anterior or posterior circulation are included) in the sub-acute phase, as well as test data from *N*=83 healthy controls, we will elaborate on the psychometric properties of five tests, including analyses of item characteristic functions, reliability and convergent validity.

Conclusions: This is the first EMA study to use objective measures of cognitive performance in stroke patients and has the potential to tailor rehabilitation programmes to patients' daily needs.