Development and validation of an IRT and theory-based Oxford Cognitive Screen short form (OCS-GP) for use in primary care

Sam S. Webb, Luning Sun, Robyn Charleston, Eugene Tang, Nele Demeyere– **Ongoing project**
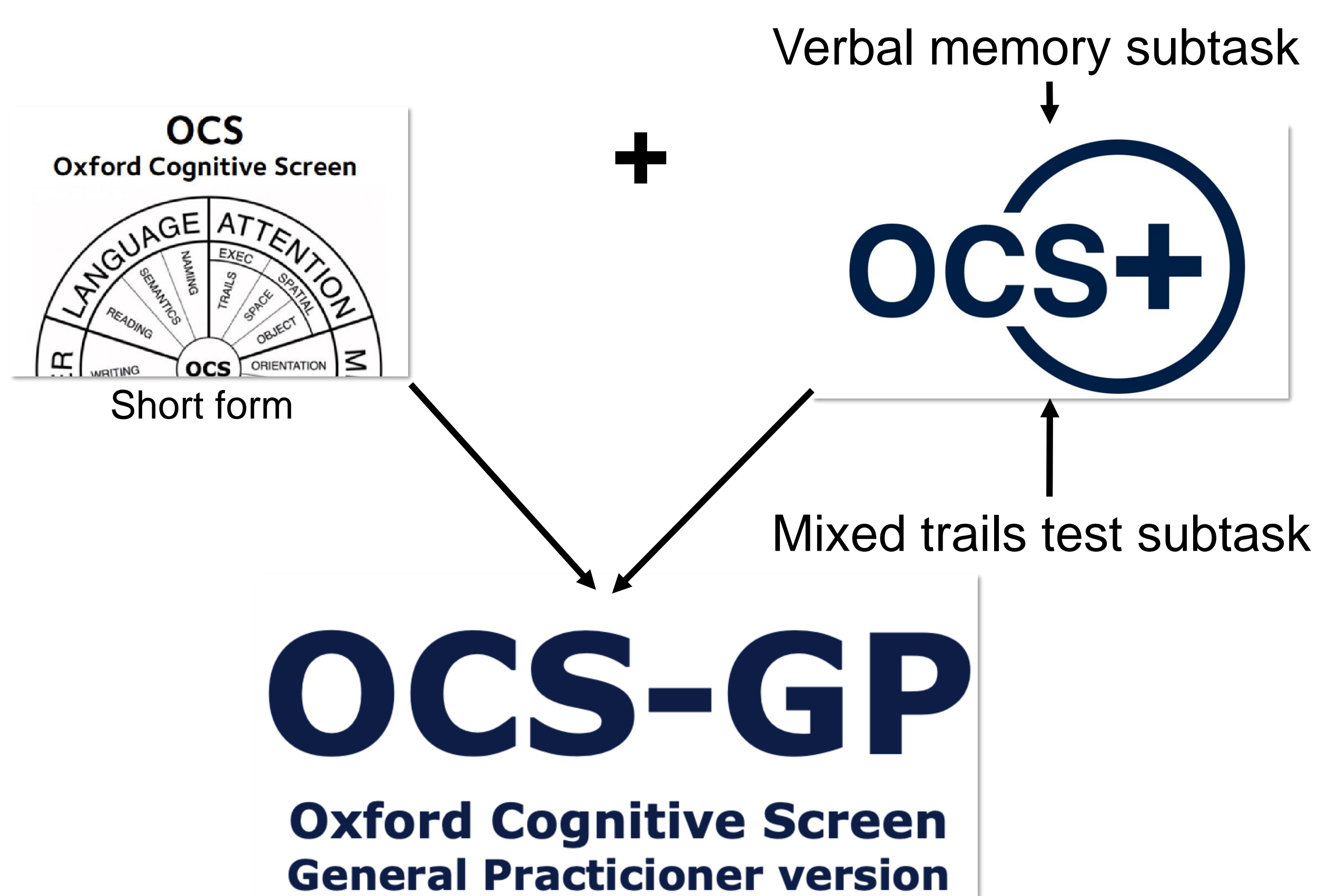
Introduction

When (and if) GPs review cognition for a stroke survivor, they often rely on tools developed for **dementia** like the GP-COG, MMSE or MoCA.

We aimed to develop a short form version of a stroke-specific cognitive screening tool, the **Oxford Cognitive Screen.** We aimed to standardise, norm and psychometrically validate this short form version for use in **primary care services**.

Participants (so far)

Aim: 200 UK representative healthy controls and 100 stroke survivors. **N (controls) = 70 (35%) – N (stroke) = 64 (64%) so far**

54.3% v 46.9%
female

16.2yrs v 14.3yrs
education

90.0% v 92.0% white British
ethnicity

82.25% ischaemic stroke   52.46% R hemisphere   6 median NIHSS

Methods: IRT modelling and test standardisation

Author LS, from the Cambridge Psychometrics Centre, completed **Item Response Theory (IRT) 2PL modelling** on full OCS data from 464 chronic (>6 months post-stroke) stroke survivors to create a **short form.**
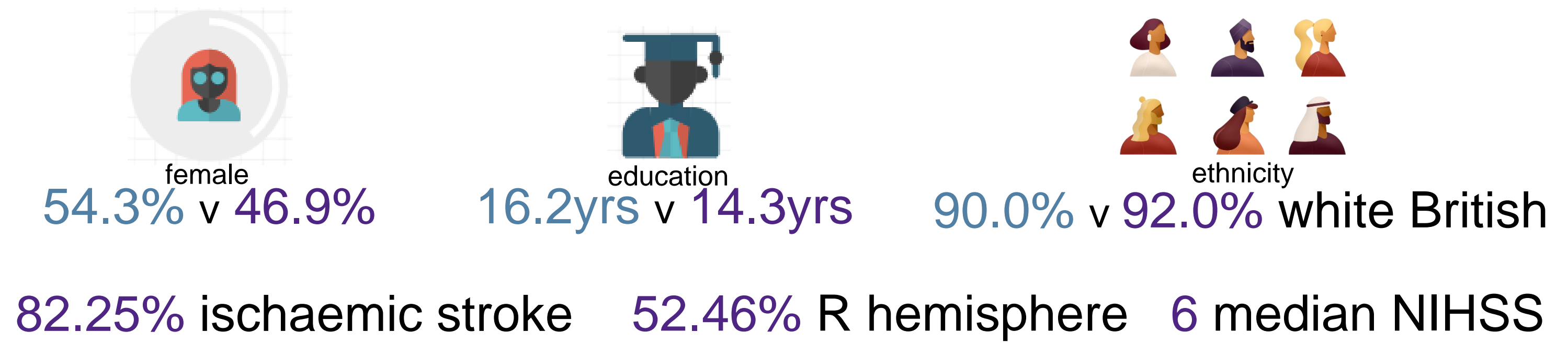
The short form OCS consisting of subtasks from different cognitive domains was significantly correlated (**r=.91**) to the full OCS. The final shortened OCS consists of theoretically and statistically motivated subtasks (aiming to have sufficient sensitivity on **memory** and **executive functioning**):

Formation of **OCS-GP**: Orientation, number calculation, praxis, spatial neglect, and sentence reading subtasks from **OCS,** paired with harder verbal memory (adjustable for aphasia) and executive function trail subtasks of the **OCS-Plus.**
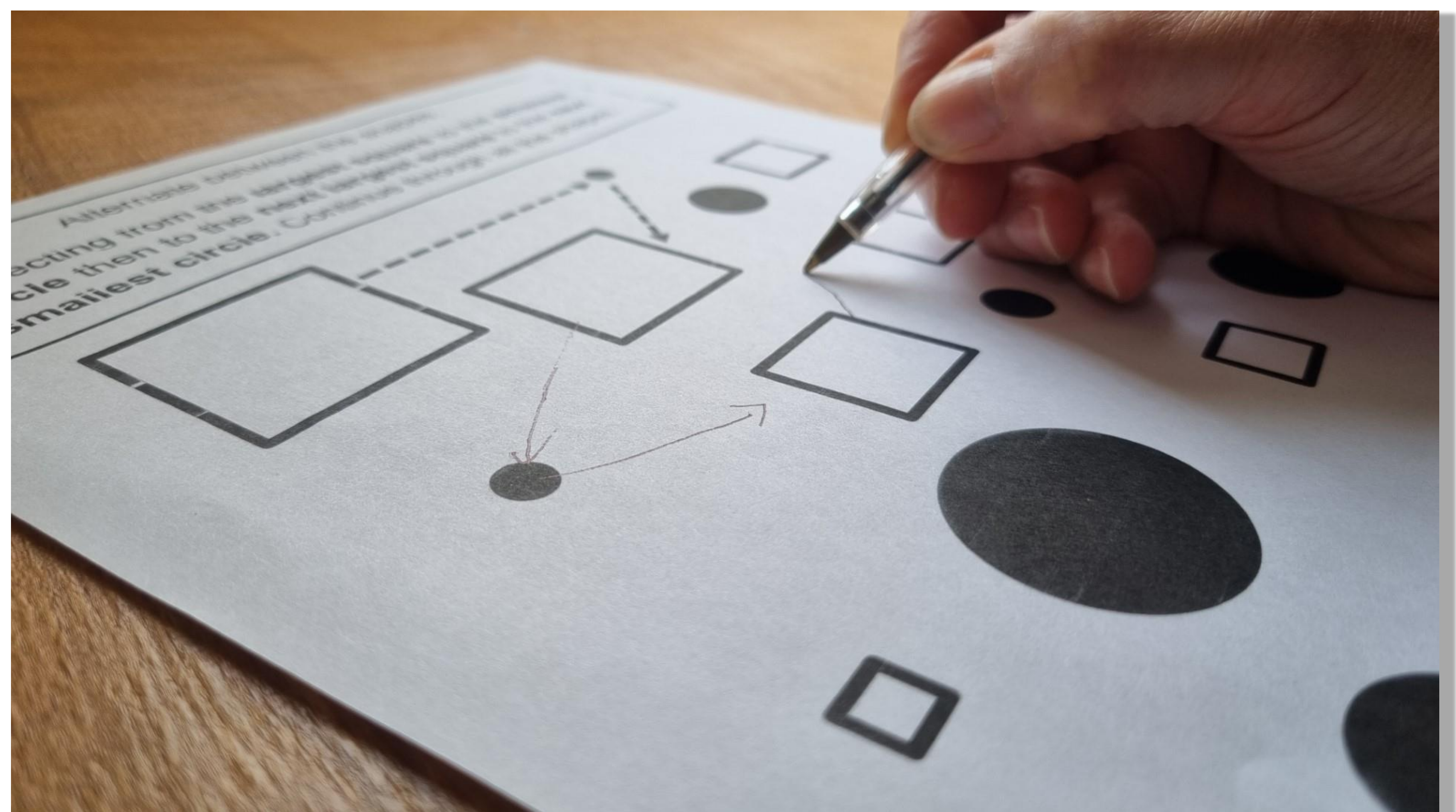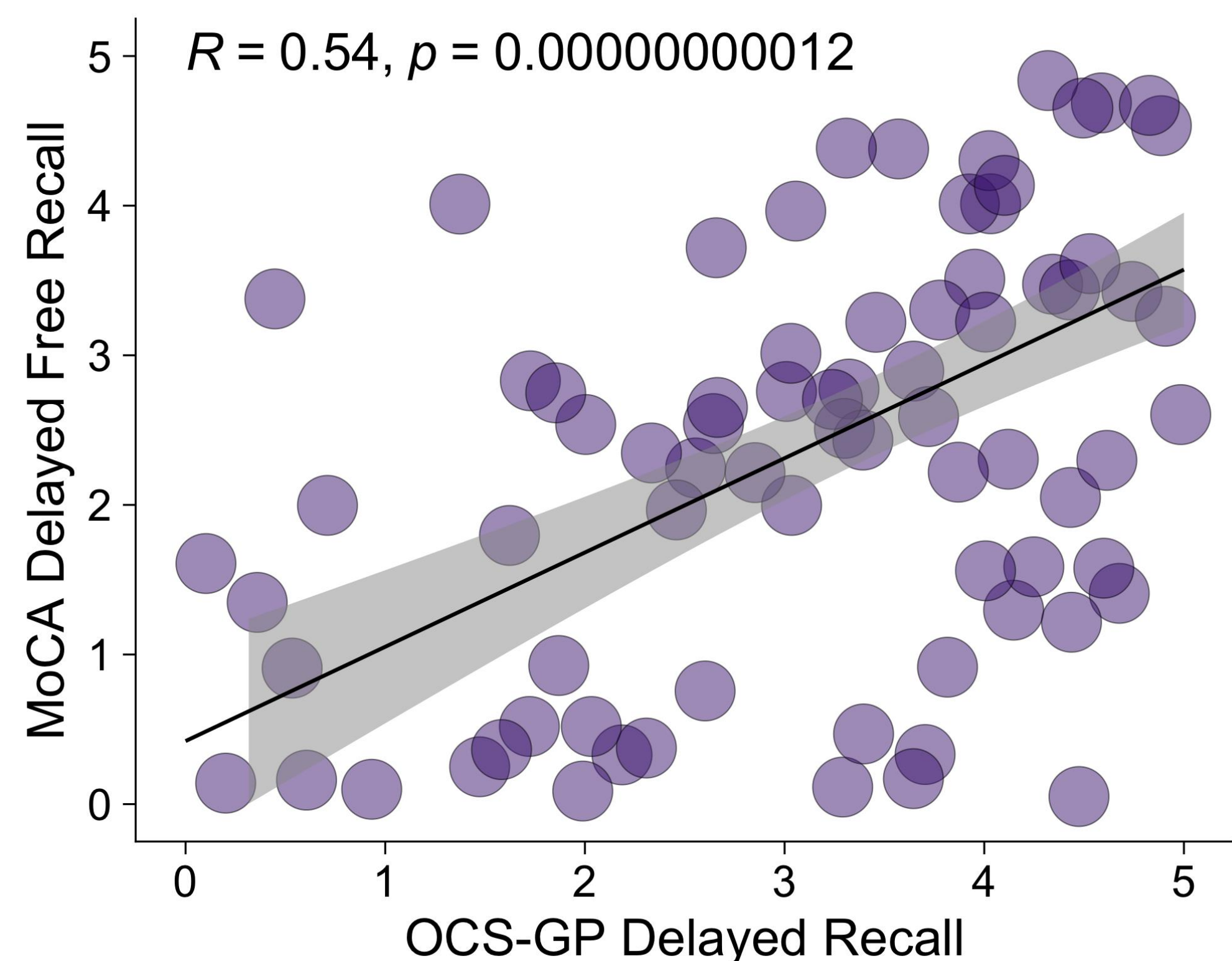
Methods: Norming and validation

Participants complete a neuropsychological battery, OCS-GP, and MoCA as used in current GP practice. Subset to be re-tested after **5-12 months** for test reliability and in line with current stroke review timelines.
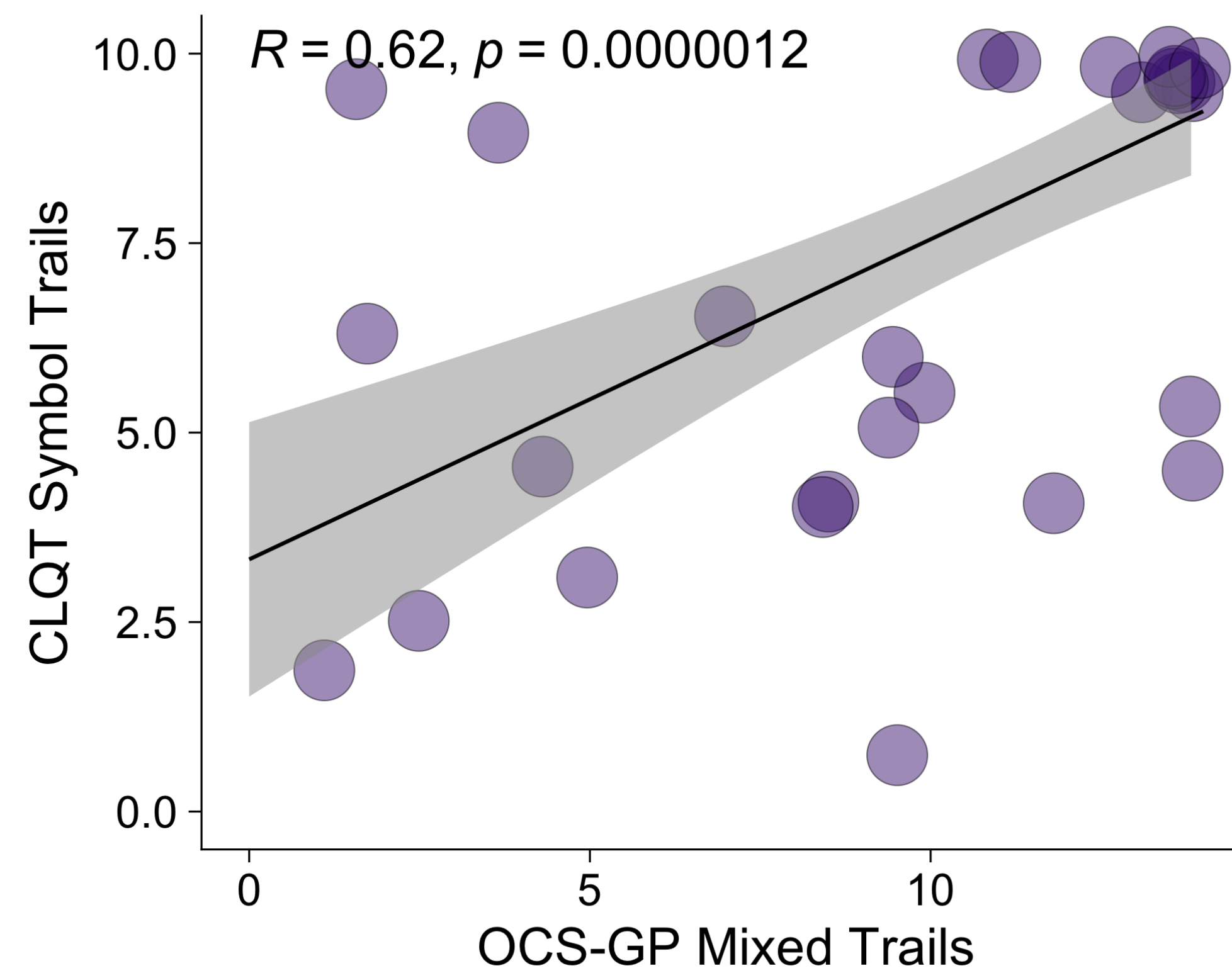

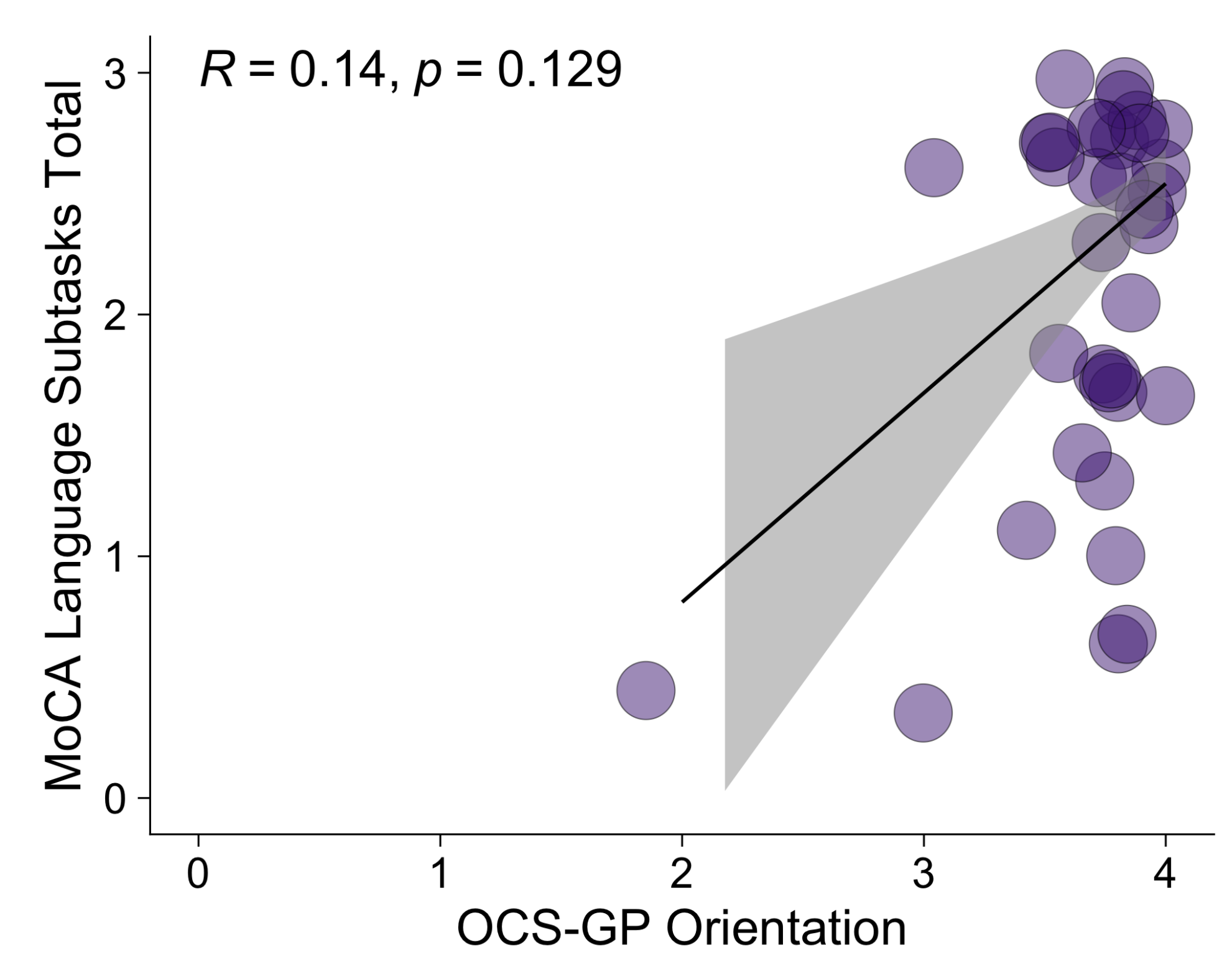
Pre-liminary results of psychometric validation

Convergent correlation example (n=121)

$R = 0.54$, $p = 0.00000000012$

Convergent correlation example (n=51)

$R = 0.62$, $p = 0.0000012$

Divergent correlation example (n=121)

$R = 0.14$, $p = 0.129$

Conclusion

OCS-GP was developed with **statistical, practical, and theoretical** factors in mind.

The task, suitable for **primary care services**, is currently **undergoing norming and psychometric validation**. Due to end August 2024.

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