



# The Mini-Oxford Cognitive Screen (Mini-OCS): a brief cognitive screen for use in chronic stroke

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## Introduction

There is currently no dedicated cognitive screen for chronic stroke survivors suitable for use within primary care and community settings, and they currently utilise dementia tools which can often be inappropriate for stroke survivors.

We aimed to standardise, norm, and psychometrically validate the Mini-Oxford Cognitive Screen (Mini-OCS), a brief (<7.5 minute) cognitive screen for use in chronic stroke in primary care settings, including GPs. The newly standardised mini-OCS was then completed by 164 neurologically healthy controls and 89 chronic stroke survivors.



Participants





Myrs education 78.57% ischaemic stroke 48.81% R hemisphere white British

6.5 Median NIHSS

## Methods: IRT modelling and test standardisation

Existing full form OCS data for 464 participants who were at least 6 months post stroke was analysed using Item Response Theory (IRT) 2PL modelling to determine the possibility of a short form.



### Formation of the Mini-OCS:

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

### Structure of the Mini-OCS:

Four pages per patient are required.
1) examiner form
2) mixed trails practice sheet
3) the mixed trails test sheet
4) shortened broken hearts cancellation

Theoretical choices were made to adapt the short form to be suitable for

## Methods: Norming and validation

To assess validity, we administered a selection of assessments that were relevant to the format and construct of the Mini-OCS:

- Montreal Cognitive Assessment (MoCA)
- Oxford Cognitive Screen
- Comprehensive Aphasia Test battery
- Boston Diagnostic Aphasia Examination
- Cognitive Linguistic Quick Test
- Behavioral Inattention Test star cancellation



Psychometric properties of the Mini-OCS were then evaluated via construct validity analyses, test-retest reliability and known-group discriminations which was based upon newly generated normative data. The total score for the Mini-OCS was generated via the 'lavPredict' function from the 'lavaan' package which used regression to calculate factor scores on the basis of a confirmatory factor analysis (maximum likelihood estimator) using all raw subtask scores.

use in chronic stroke, aiming to have sufficient sensitivity on memory and executive functioning.

## Results

Extensive psychometric evidence for the Mini-OCS is presented in supplementary materials; including reliability over time, by comparing a mixed sample (neurologically healthy ageing and stroke) on their first and retested Mini-OCS scores; convergent and discriminant validity against the MoCA as a reference standard for chronic stroke cognitive screening and against the construct and format matched neuropsychological battery, using correlational analyses in the full mixed sample.

The Mini-OCS, consisting of subtasks from different cognitive domains, was significantly correlated (r=.91) to the full OCS.

We examined the percentage of scores between test and retest that were identical, the percentages varied between tasks, but ranged from 39.13% for broken hearts total score to 91.30% for orientation scores (M=65.61%, SD=19.19% - excluding time taken in seconds).

For convergent validity, all Mini-OCS scores correlated with at least one comparison task per comparison (e.g., some metrics used more than one comparison task) above a pre-defined benchmark of r=.30, except broken hearts ego- and allo-centric neglect. For discriminant validity, none exceeded the benchmark of r=.30.

### Conclusion

The Mini-OCS was developed as a standardised, stroke-specific cognitive screening tool with good psychometric properties for use in a chronic stroke population. The Mini-OCS is quick to administer and highlights cognitive strengths and weaknesses.

- <7.5 minutes to complete on average.</p>
- Sychometrically reliable and valid and designed to be inclusive for all chronic stroke survivors.

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The views expressed in this research are those of the author(s) and not necessarily those of the NIHR, NHS or the UK Department of Health and Social Care.

Further research should examine test-retest reliability and the feasibility and practical implementation of using the Mini-OCS in primary care and community settings.

If you have any questions about the Mini-OCS or want to find out more about the research, please contact:

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Alternatively you can vist the OCS page on Oxford University Innovation's website using the QR code!



OCS assessment

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