



Comparison of the Folstein MMSE to the MoCA

As a Cognitive Screening Tool in
an Inpatient Rehabilitation Setting



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Introduction



- Mild cognitive impairment is common in elderly patients and can impact on quality of life and prognosis
- Identification of mild cognitive impairment in patients admitted for inpatient rehabilitation is important as this may impact on their ability to participate actively in a multidisciplinary rehabilitation program
- Cognitive screening tools (such as the MMSE and MoCA) in the elderly assist with identifying the presence of cognitive impairment

Overview of the MoCA

MONTREAL COGNITIVE ASSESSMENT (MOCA)

NAME : _____

Education : _____ Sex : _____

Date of birth : _____ DATE : _____

VISUOSPATIAL / EXECUTIVE

End
Begin

Copy cube

Draw CLOCK (Ten past eleven)
(3 points)

[]

[]

POINTS

_ / 5

NAMING

[]

[]

[]

POINTS

_ / 3

MEMORY

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

ATTENTION

Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [] 2 1 8 5 4
Subject has to repeat them in the backward order [] 7 4 2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
[] FBACMNAAJKLBAFAKDEAAAAJAMOFAB

Serial 7 subtraction starting at 100 [] 93 [] 86 [] 79 [] 72 [] 65
4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

LANGUAGE

Repeat : I only know that John is the one to help today. []
The cat always hid under the couch when dogs were in the room. []

Fluency / Name maximum number of words in one minute that begin with the letter F [] _____ (N ≥ 11 words)

ABSTRACTION

Similarity between e.g. banana - orange = fruit [] train - bicycle [] watch - ruler

DELAYED RECALL

Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED
Category cue					
Multiple choice cue					

Points for UNCUED recall only

Optional

ORIENTATION

[] Date [] Month [] Year [] Day [] Place [] City

POINTS

_ / 30

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Administered by: _____

www.mocatest.org

Normal ≥ 26 / 30

TOTAL _____

Add 1 point if ≤ 12 yr edu

+ MMSE vs MoCA



- Our study is the first to compare the utility of the MMSE and MoCA in an inpatient rehabilitation setting for everyday clinical use
- The aim was to determine the correlation between the MMSE and MoCA scores in individual patients to determine whether the MoCA could be used as a cognitive screening tool to detect mild cognitive impairment



Method



- Newly transferred patients to Balmain Hospital rehabilitation ward were recruited into the study
- Study conducted between the period of December 2009 and May 2010
- A policy was already in place for conducting MMSE ax on patients over the age of 65
- Verbal consent obtained to also perform the MoCA on all patients

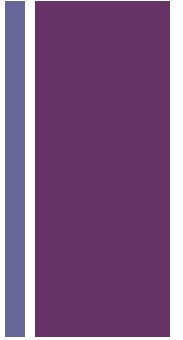


Method Cont.



- Assessments were conducted at least 3 days after being admitted to the ward so that patients had time to settle into the new ward environment
- The same therapist performed the MMSE and MoCA
- The time between each test was at least 30 minutes
- MMSE and MoCA scores were obtained as well as the time taken to perform each test

+ Demographic



Information was collected including:

- Ethnicity
- Language spoken at home
- Years of schooling
- Prior history of dementia
- Principle and secondary diagnosis

+ Exclusions



- Patients who were medically unstable (delirium)
- Patients who refused
- Patients from a CALD background who did not have a premorbid basic level of English

+ Results



- A total of 50 patients were studied over the study period
- Average age of the subjects was 70.4 years of age, ranging from 31 to 98 years of age
- 27 males and 15 females
- Mean age of schooling was 11.45 years
- Majority primary diagnoses were neurological 42% (stroke, falls), deconditioned post-operatively 35% (abdominal and cardiac surgery), and orthopaedic 28% (THR and TKR)



Results Cont.



- 90% of patients spoke English as their primary language at home
- Remaining 10% spoke other languages, but had no problems with performing the MMSE and MoCA in English (as their English was just as strong)
- Only 1 patient reported having a previous history of dementia, but on cognitive testing, there was no evidence of this on either the MMSE or MoCA
- Mean MMSE test score: 26.3, mean performance time: 7.6min
- Mean MoCA test score: 22.4, mean performance time: 15.2min



Discussion



- We found MMSE does not perform well as a screening instrument for mild cognitive impairment due in part to the lack of sensitivity to milder cognitive deficits
- 19% patients achieved a perfect score on the MMSE
- Compared to only 7% patients on MoCA.
- In addition, of the 35 patients with intact global cognition, as defined by a “normal” score on the MMSE 51% scored 25 or less on MoCA

+ OT Relevance



- The MoCA took nearly twice as long to perform, but therapists preferred the MoCA
- The MoCA covers greater areas of cognitive fields and looks at higher executive function that is not assessed by the MMSE
- MoCA was easy to interpret and discuss with other clinicians
- Multiple translations available for the MoCA, meaning it can still be standardized
- Score for the MoCA remains out of 30 and therefore makes it a good objective measure for test re-test comparisons and discussion



Conclusion



- Our study recommends that MoCA be used over the widely used MMSE and suggests the need for more validation of the MoCA and MMSE in a population study against other screening instruments
- The MoCA promises to fill an urgent and unmet need for brief sensory tool capable of detecting patients with mild cognitive impairment and distinguishing them from cognitively intact older people



This study has
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