

Validity and reliability of SMART - a new AI-empowered digital cognitive tool for the detection of mild cognitive impairment in the community



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SMART is simple and easy to self-administer and shows potential as a community-based screening tool for MCI.

INTRODUCTION		METHODS		RESULTS & CONCLUSIONS		CONCLUSIONS (CON'T)															
The Simple Mild Cognitive Impairment due to Alzheimer’s Disease Risk Test (SMART) is: - a novel <u>digitalised cognitive screening tool</u> <u>uses a large language model</u> to capture and interpret spoken language for <u>assessing cognitive impairment</u>.		Healthy elderly subjects (n = 140) recruited from the community, excluding stroke, dementia, or other neurological diseases. Demographic information (age, sex, education, vascular risk factors) was collected, and participants completed 3 cognitive assessments: SMART, Hong Kong MoCA-5min¹, and Hong Kong List Learning Test (HKLLT)². ROC analysis was performed to validate the classification of Mild Cognitive Impairment (MCI; defined as HKLLT <1.5 SD) from controls using SMART. Test-retest reliability was assessed with a one-month interval between sessions.		- Out of 140 subjects, 10 were classified as MCI and 130 were cognitively unimpaired (CU). - Subjects with MCI had a lower score in SMART compared to those in the CU group (5.81 vs. 9.47; p < 0.01). - Age, sex, education, vascular risk factors (hypertension, diabetes mellitus, smoking and drinking habits), mood, and technology savviness did not differ between the two groups.		 - At an optimal cutoff score of 7.5, SMART demonstrated robust performance with an AUC of 0.83 and 71% accuracy. - The overall performance of SMART was comparable to that of MoCA-5min. - The test-retest reliability of SMART one month apart was 0.73.		SMART is a novel, short (<5 minutes), easy to self-administer tool that shows potential as a community-based screening tool for MCI. Ongoing work aims to recruit more subjects, particularly those with MCI, and to apply SMART in primary and secondary care settings.													
<table><tr><th>No.</th><th>Questions</th></tr><tr><td>Q1</td><td>Memory test – immediate recall</td></tr><tr><td>Q2</td><td>Animal fluency</td></tr><tr><td>Q3</td><td>Lost of interest</td></tr><tr><td>Q4</td><td>Subjective memory complaints</td></tr><tr><td>Q5</td><td>Objective memory issues</td></tr><tr><td>Q6</td><td>Delayed recall</td></tr></table> Aim: Being developed based on a cohort (n=977), we aim to validate SMART on an independent community sample.		No.	Questions	Q1	Memory test – immediate recall	Q2	Animal fluency	Q3	Lost of interest	Q4	Subjective memory complaints	Q5	Objective memory issues	Q6	Delayed recall					REFERENCE & CONTACT 1. Wong, A., Law, L. S., Liu, W., Wang, Z., Lo, E. S., Lau, A., Wong, L. K., & Mok, V. C. (2015). Montreal Cognitive Assessment: One cutoff never fits all. <i>Stroke</i>, 46(12), 3547–3550. 2. Chan, A. S., & Kwok, I. (1999). Hong Kong list learning test: manual and preliminary norm. <i>Hong Kong: Department of Psychological and Clinical Psychology Center</i>. Email: bonnieyklam@cuhk.edu.hk	
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