**Current state of self-administered brief digital cognitive assessments in older adults: a systematic review: Supplementary materials**

Elena Tsoy PhD, Stelios Zygouris MSc, Katherine L. Possin PhD

**Table of Contents**

Supplementary Methods 1. E-mail survey questions for test developers.

Supplementary Methods 2. Search strings.

Supplementary Results. PRISMA flowchart.

**Supplementary Methods 1. E-mail survey questions for test developers.**

Question 1. Is [tool] suitable for remote at-home administration by the participant/patient? If yes, does [tool] have the functionality for the participant/patient to log into the cognitive testing software without an examiner?

Question 2a. Based on our review of [tool], our understanding is that it can be used on [platforms]. Is this information accurate? Please let us know if there is anything we missed or if there have been any updates not reflected on your website.

Question 2b. Have there been any studies on [tool] that have looked at performance across devices? Do you use different normative data or any normative adjustments depending on the type of device used? Please point us in the direction of any published work you have done on this.

Question 3a. What languages is [tool] is available in? If it is available in languages other than English, could you provide information regarding how the cultural/linguistic adaptations were performed?

Question 3b. Have there been validation studies of your battery in non-English speaking samples?

**Supplementary Methods 2. Search strings.**

|  |  |  |
| --- | --- | --- |
| Database | Search terms | N |
| PubMed | (("Computers, Handheld"[MeSH Terms] OR "Mobile Applications"[MeSH Terms] OR "computer\*"[All Fields] OR "digital"[All Fields] OR "automate\*"[All Fields] OR "electronic\*"[All Fields] OR "tablet\*"[All Fields] OR "ipad"[All Fields] OR "iphone"[All Fields] OR "android"[All Fields] OR "mobile device"[All Fields] OR "mobile app\*"[All Fields] OR "pda\*"[All Fields] OR "smartphone\*"[All Fields] OR "smart phone"[All Fields] OR "cell phone\*"[All Fields] OR "cellular phone"[All Fields] OR "touchscreen"[All Fields] OR "touch screen"[All Fields] OR "internet\*"[All Fields]) AND ("Mental Status and Dementia Tests"[MeSH Terms] OR "Neuropsychological Tests"[MeSH Terms] OR "Cognition"[MeSH Terms] OR "Cognition Disorders/psychology"[MeSH Terms] OR "screen\*"[All Fields] OR "assess\*"[All Fields] OR "test\*"[All Fields] OR "neuropsych\*"[All Fields] OR "neurocog\*"[All Fields]) AND ("Aged"[MeSH Terms] OR "aged"[All Fields] OR "elder\*"[All Fields] OR "older adult\*"[All Fields] OR "geriatric\*"[All Fields] OR "senior\*"[All Fields]) AND ("Dementia"[MeSH Terms] OR "Cognition Disorders/diagnosis"[MeSH Terms] OR "Dementia/diagnosis"[MeSH Terms] OR "Alzheimer Disease/diagnosis"[MeSH Terms] OR "Cognitive Dysfunction/diagnosis"[MeSH Terms] OR "Alzheimer\*"[All Fields] OR "dement\*"[All Fields] OR "MCI"[All Fields] OR "cognitive impairment"[All Fields] OR "cognitive disorder"[All Fields] OR "cognitive decline"[All Fields] OR "cognitive dysfunction"[All Fields])) | 7351 |
| PsychInfo | noft(“handheld computer\*” OR “computer\*” OR “digital” OR “automate\*” OR “electronic\*” OR “tablet\*” OR “ipad” OR “iphone” OR “android” OR “mobile device” OR “mobile app\*” OR “mobile application” OR “pda\*” OR “smartphone\*” OR “smart phone” OR “cell phone\*” OR “cellular phone” OR “touchscreen” OR “touch screen” OR “internet\*”) AND noft(“Computerized Assessment”[SU] OR “cognitive screen\*” OR “cognitive assessment\*” OR “cognitive test\*” OR “cognitive battery” OR “neuropsych\*” OR “neurocog\*”) AND noft(“aged” OR “elder\*” OR “older adult\*” OR “geriatric\*” OR “senior\*”) AND noft(“cognitive impair\*” OR “cognitive disorder” OR “cognitive decline” OR “cognitive dysfunction” OR “cognitive defect” OR “memory disorder” OR “MCI” OR “Alzheimer\*” OR “dement\*”) | 2803 |
| Web of Science | TOPIC: ("handheld computer\*” OR "computer\*" OR "digital" OR “automate\*” OR “electronic\*” OR "tablet\*" OR "ipad" OR "iphone" OR "android" OR "mobile device" OR "mobile app\*" OR "mobile application" OR "pda\*" OR "smartphone\*" OR “smart phone” OR “cell phone\*" OR “cellular phone” OR "touchscreen" OR “touch screen” OR "internet\*") AND TOPIC: (“cognitive screen\*” OR "cognitive assessment\*" OR "cognitive test\*" OR “cognitive battery” OR “neuropsych\*” OR “neurocog\*”) AND TOPIC: (“aged” OR "elder\*" OR "older adult\*" OR "geriatric\*" OR "senior\*") AND TOPIC: ("cognitive impair\*” OR “cognitive disorder” OR “cognitive decline” OR “cognitive dysfunction” OR “cognitive defect” OR “memory disorder” OR “MCI” OR "Alzheimer\*" OR "dement\*") | 762 |
| EMBASE | ('handheld computer\*':ti,ab,kw OR 'computer\*':ti,ab,kw OR 'digital':ti,ab,kw OR 'automate\*':ti,ab,kw OR 'electronic\*':ti,ab,kw OR 'tablet\*':ti,ab,kw OR 'ipad':ti,ab,kw OR 'iphone':ti,ab,kw OR 'android':ti,ab,kw OR 'mobile device':ti,ab,kw OR 'mobile app\*':ti,ab,kw OR 'mobile application':ti,ab,kw OR 'pda\*':ti,ab,kw OR 'smartphone\*':ti,ab,kw OR 'smart phone':ti,ab,kw OR 'cell phone\*':ti,ab,kw OR 'cellular phone':ti,ab,kw OR 'touchscreen':ti,ab,kw OR 'touch screen':ti,ab,kw OR 'internet\*':ti,ab,kw) AND ('cognitive screen\*':ti,ab,kw OR 'cognitive assessment\*':ti,ab,kw OR 'cognitive test\*':ti,ab,kw OR 'cognitive battery':ti,ab,kw OR 'neuropsych\*':ti,ab,kw OR 'neurocog\*':ti,ab,kw) AND ('aged':ti,ab,kw OR 'elder\*':ti,ab,kw OR 'older adult\*':ti,ab,kw OR 'geriatric\*':ti,ab,kw OR 'senior\*':ti,ab,kw) AND ('cognitive impair\*':ti,ab,kw OR 'cognitive disorder':ti,ab,kw OR 'cognitive decline':ti,ab,kw OR 'cognitive dysfunction':ti,ab,kw OR 'cognitive defect':ti,ab,kw OR 'memory disorder':ti,ab,kw OR 'mci':ti,ab,kw OR 'alzheimer\*':ti,ab,kw OR 'dement\*':ti,ab,kw) | 701 |

**Supplementary Results. PRISMA flowchart (1).**

## Identification

## Eligibility

## Included

## Screening

Records identified through database searching  
(n = 11,617)

Additional records identified through other sources  
(n = 0)

Records after duplicates removed  
(n = 9,986)

Records screened  
(n = 9,986)

Studies included in quantitative synthesis  
(n = 17)

Full-text articles assessed for eligibility  
(n = 70)

Records excluded  
(n = 9,916)

Full-text articles excluded, with reasons (n = 53)

* Testing not in English = 20
* Not self-administered = 8
* No control/clinical sample = 7
* Longer than 30 min = 5
* Assesses <2 cognitive domains = 7
* Feasibility/follow-up study = 4
* Requires additional hardware = 1
* Not a cognitive test = 1

1. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Med* 6(7): e1000097. doi:10.1371/journal.pmed1000097