

The Brain Health Assessment for Detecting and Diagnosing Neurocognitive Disorders

Background

- Early detection of cognitive impairment or dementia is important for effective patient management.
- Cognitive assessment screens that are currently used in primary care settings perform well for identifying dementia; however, these tests often fail to detect mild cognitive impairment (MCI).^{1,2}
- **Objective:** Investigators developed and validated a 10-minute tablet-based software platform for the detection of dementia and MCI: the University of California San Francisco (UCSF) Brain Health Assessment (BHA).

Methods

- The UCSF BHA includes 4 subtests that measure different aspects of cognition: language, memory, visuospatial skills, and executive function and speed. The UCSF BHA also includes a brain health survey that is answered by a person who is familiar with the patient.
- The study population was composed of 347 older adults from the UCSF Memory and Aging Center:
 - 185 neurologically healthy controls
 - 99 patients with diagnosed MCI
 - 42 patients with diagnosed dementia
 - 21 patients considered normal, but with concerns
- The sensitivity of the UCSF BHA for the detection of dementia and MCI was compared to that of the gold-standard Montreal Cognitive Assessment (MoCA); a specificity level of 85%, which is higher than most reported studies, was emphasized to minimize false positives.
- 145 patients underwent brain magnetic resonance imaging to assess the correlation of subtest performance with specific brain volumes.

Results

- Sensitivity levels (at 85% specificity) were as follows:
 - UCSF BHA: 100% for dementia and 84% for MCI
 - MoCA: 79% for dementia and 25% for MCI
- MRI findings indicated that subtest performance correlated with volumes of expected regions of the brain related to memory, executive speed, and visuospatial functions.

Conclusions

- In this study population, the 10-minute tablet-based UCSF BHA demonstrated good sensitivity and specificity for detection of dementia and MCI.
- Further study of the validity of the UCSF BHA on more diverse populations is ongoing, as is the implementation of the UCSF BHA in primary care settings.

Article published in the *Journal of the American Geriatrics Society*

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Citation

Possin KL, Moskowitz T, Erhoff SJ, et al. *J Am Geriatr Soc.* 2018;66(1):150-156

Webpage

<https://www.ncbi.nlm.nih.gov/pubmed/29355911>

References

1. Lin JS, O'Connor E, Rossom RC, et al. *Ann Intern Med.* 2013;159:601-612.
2. Davis DH, Creavin ST, Yip JL, et al. *Cochrane Database Sys Rev.* 2015;29:CD010775.