



Tablet Application for Administration and Scoring the Brief International Cognitive Assessment for MS (BICAMS)

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INTRODUCTION

Approximately 50% of individuals with multiple sclerosis (MS) develop cognitive impairment. Early detection of cognitive difficulties may lead to improved outcomes. Self-report is often used to screen for cognitive dysfunction, but metacognition is often impaired. Thus, objective tests are the best way to diagnose and track cognitive change over time. However, neuropsychological evaluations are expensive, time consuming, and require neuropsychologists for interpretation. Therefore the BICAMS, a truncated battery with strong psychometrics (sensitivity 94% and specificity 86%), was developed as a way for MS medical personnel, without training in neuropsychology, to track cognition over time.

Despite the strengths of the BICAMS, there are barriers preventing providers from adopting this recommended assessment. Although the original intent of the BICAMS was to create an intuitive assessment for non-neuropsychologists, the scoring and interpretation require precious clinic time and necessitate an understanding of psychometric information such as z-scores and percentiles. The increasing emphasis on paperless systems (EMRs) may also render paper administration of the BICAMS obsolete. Given that tablet computers (e.g., iPad) are common in numerous medical facilities, this technology will potentially increase accessibility of the BICAMS to all providers caring for individuals with MS.

PURPOSE OF CURRENT STUDY

- To test the reliability of a BICAMS “app” against the traditional paper version.
- We hope the app will reduce administration time, allow for quick easy scoring, and provide interpretation of test scores.

Application Screen Shots

* Images have been edited to protect the integrity of test materials

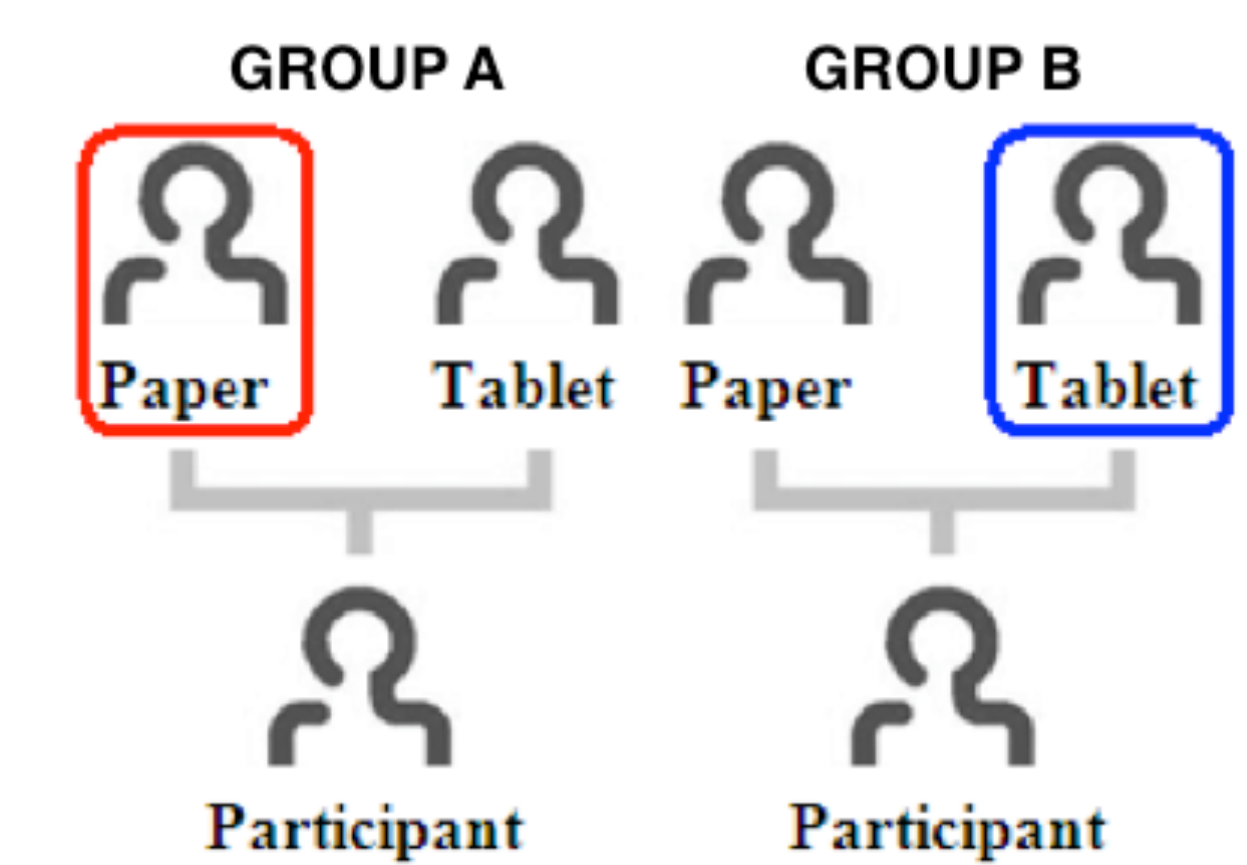
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METHODS

- This CMSC-funded pilot study will enroll 100 participants with MS (2 groups, N=50).
- *Inter-rater* and *parallel forms reliability* is assessed using 2 test administrators scoring participant responses simultaneously – one on the paper BICAMS and the other on the BICAMS app. Half of the testing sessions are led by the paper administrator (Group A) and half by the app administrator (Group B).

• *Concurrent validity* is assessed using an analogous design. Although only exposed to the material once, participant responses are recorded on both administration methods.



STATISTICS

Intraclass correlations will be used to examine the agreement between scores from Group A and B. A Bland-Altman plot will be used to examine difference across the continuum of cognitive function (i.e., whether the agreement is consistent across cognitive function).

CONCLUSIONS

This study is a work in progress; data collection is underway.

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