Assessing an individual’s cognitive capacity has become an increasingly large part of caring for the elderly. Cognitive capacity assessments are used to determine the level of care an individual requires and they have legal implications for determining whether an individual is capable of making decisions about property and their personal care. Full cognitive capacity assessments are difficult to administer and are time-consuming, so shorter versions have been created that can be to follow an individual’s capacity and cognitive health over long periods of time. Currently, the most widely used tests are the the Mini-Mental State Exam (MMSE; Folstein, Folstein, & McHugh, 1975) and the Montreal Cognitive Assessment (MoCA; Nasreddine et al., 2005). Both the MMSE and the MoCA are paper-pencil tests administered by a trained individual. The MMSE was developed in 1975 as an efficient way to routinely evaluate psychiatric patients (Folstein et al., 1975). Currently, the MMSE is most widely used in clinical and legal settings. However, the MoCA may well replace the MMSE as the gold-standard because it is freely available and recent work has shown the MoCA’s increased sensitivity for detecting mild cognitive impairment (Larner, 2012; Smith, Gildeh, & Holmes, 2007; Zadikoff et al., 2008). The ability to accurately detect cognitive impairment is extremely important for the appropriate care of aging and elderly populations.

The MoCA and the MMSE are paper-and-pencil tests scored out of 30 points. Using these tests, cognitive impairment is determined based on an individual’s score as compared to a cutoff. One issue that arises is an ambiguity in how to interpret scores that fall near the borderlines. Such an ambiguity results in misclassification of some individuals. Recently, a computerized battery of tests was used to differentiate 80% of individuals who had borderline cognitive impairment as determined by the MoCA (Brenkel, Shulman, Hazan, Herrmann, & Owen, 2017). The scores on the computerized tests were used to m

This result indicates that this computerized test battery is capable of a more fine-grained differentiation between those who are or are not cognitively impaired. Computerized test batteries have the advantage of not being administered by a human and is therefore a more consistent approach to administering a test.

We were interested to see which subset of the computerized test battery tasks predicted MoCA and MMSE scores.

Methods

Subjects

Participants were recruited from retirement homes and the general community. Participants over the age of 50 with the ability to provide informed consent were included in the study. Any participant who was unable to understand the instructions of the tasks was excluded. In total \_\_ participants (\_\_ female) participated in this study. The study was approved by the University of Western Ontario Research Ethics Board. All subjects gave written informed consent to participate.

Methods

The computerized test battery (CBS battery) consisted of 12 different tasks. Details regarding these tasks can be found \_\_\_\_. These tasks were presented to participants on a tablet computer. Each of the tasks was preceded by instructions and practice trials. Participants completed all 12 tasks in a random order and took as many breaks as necessary to prevent fatigue. After the CBS task battery, participants were asked to complete a demographic questionnaire on paper. Participants were given as much time as they needed to fill out the questionnaire after which they returned to the testing room where the MoCA and MMSE were administered. MoCA version 7.1 (English) and the MMSE (Folstein et al, 1987) were presented on paper. Both tasks are scored out of 30 points.

Data Analysis