MoCA-22: Criterion Validity and Classification Accuracy of the MoCA's Auditory Items

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OBJECTIVE

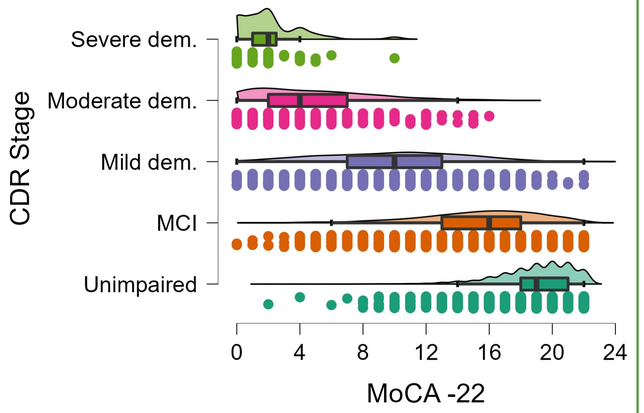
- With the aging population, there are commonly vision problems which interfere with common cognitive screening tools such as the Montreal Cognitive Assessment (MoCA).
- There is the auditory MoCA (MoCA-22; also referred to as the telephone MoCA and MoCA-blind) whose criterion validity has been under-evaluated.
- Our research aims to evaluate select psychometric properties of the MoCA-22 amongst individuals with and without vision impairment and of different dementia syndromal stages.
- We also wanted to explore the classification accuracy of the MoCA-22 as it relates to being able to distinguish from mild cognitive impairment (MCI) from unimpaired cognition and mild-to-moderate dementia.

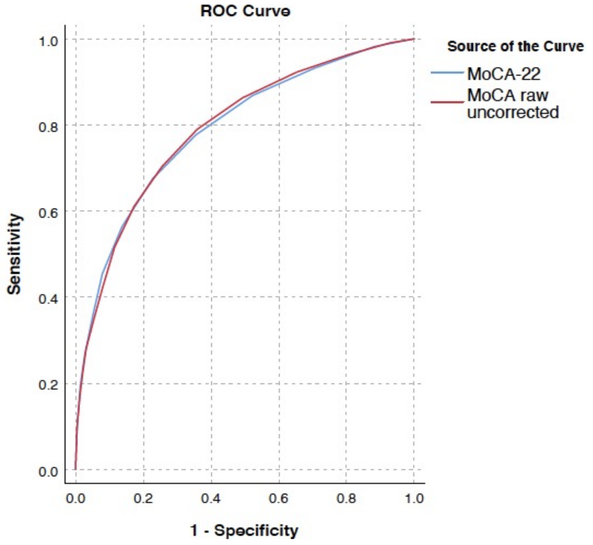
METHODS

- The National Alzheimer's Coordinated Center database was utilized which included 11,284 participants who completed a portion of the MoCA during their first visit to an Alzheimer's Disease Research Center.
- Participants:
  - 57.64% women and 42.36% men
  - 77.98% White, 13.74% Black, 0.76% American Indian, 0.08% Pacific Islander, 3.22% Asian, & 2.74% Multiracial
  - Mean age was 69.22 years and mean years of education was 15.89 (college educated)
  - 71.7% had some visual impairment and 2.8% didn't benefit from lenses
- Dementia stages included: 43.73% unimpaired; 40.99% mild cognitive impairment; 12.17% mild dementia; 2.7%, moderate dementia; 0.41% severe dementia
- Statistical analyses included: ANOVAs and t-tests to evaluate criterion validity for the MoCA-22. To test for diagnostic accuracy, area under the receiver operating characteristic (ROC) curves were explored.

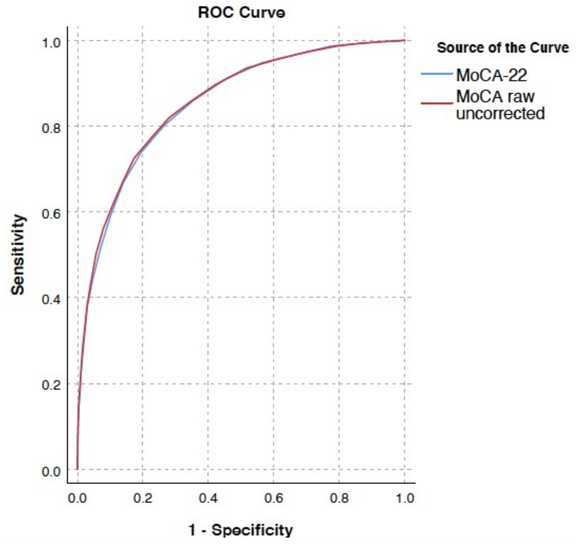
RESULTS

- The visually mediated MoCA items had larger differences among those with and without visual impairment compared to the MoCA-22.
- There were also large differences across the dementia syndromal stages (ANOVA $F = 3041.74$, $p < .01$, $\eta^2 = .53$).
- MoCA-22 Ms (SDs):
- Unimpaired 18.98 (2.35)
- MCI 15.47 (3.73)
- Mild Dementia 9.96 (4.40)
- Moderate Dementia 4.76 (3.73)
- Severe Dementia 2.02 (2.01)





The classification accuracy from distinguishing MCI from normal cognition (AUC = .79)



The classification accuracy from distinguishing mild-to-moderate dementia from MCI (AUC = .85).

CONCLUSIONS

- With there being commonly impaired individuals in older adults and geriatric populations, the traditional MoCA cannot be administered.
- Our findings revealed that the MoCA-22 is robust against visual impairment, while being sensitive to cognitive stage.
- Despite having 8 less scorable items than the traditional MoCA, the MoCA-22 still demonstrated strong diagnostic accuracy when differentiating between several cognitive severities.
- Overall, the MoCA-22 is a useful cognitive screening tool to be used by healthcare professionals.

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