

Special Issues on Using the Montreal Cognitive Assessment for telemedicine Assessment During COVID-19

To the Editor

The coronavirus disease 2019 (COVID-19) crisis has accelerated the need for cognitive screening adapted to telemedicine. Understandably, clinicians are trying to use tools in hand. As codvelopers of the Montreal Cognitive Assessment (MoCA¹), we have received inquiries on whether and how to adapt the test, what norms are available, and how to validly assess older adults with hearing and/or vision loss.

There are modified MoCA versions, including one for telephone administration² and some that omit visual or auditory items with validated cutoff scores.^{3,4} The MoCA website issued an e-mail (March 20, 2020) stating that it has been validated for remote testing. To our knowledge, there are no published validated remote testing adaptations with norms for key groups of interest, including those with assessed sensory abilities.

Telephone-alone and videoconference (ie, remote) administrations present special challenges.

1. *Interpreting test results from remote administrations requires full understanding of the examinee's vision and hearing abilities.* Age-related hearing, vision, or dual-sensory loss is highly prevalent (80%⁵). One cannot assume intact sensory abilities, and the sensory modality influences test performance.^{3,6} As a minimum, the examiner should ask:


- Hearing: "How would you characterize your hearing (with a hearing aid if you use one)?", "Is it difficult to follow a conversation if there is background noise, such as a radio, even if using a hearing aid?", "Do you use any aids, specialized equipment, or services for persons who are hard of hearing and, if so, which?";
- Vision: "How would you characterize your eyesight (using glasses or corrective lenses if you use them)?", "Besides glasses or contact lenses, do you use any aids or specialized equipment for persons who are blind or visually impaired and, if so, which?";
- Note that assistive devices should be used during the examination.

2. *Test administration will be nonstandardized due to variation in devices used to deliver (the examiner) and receive (the examinee) the information.* Persons with reduced hearing are disadvantaged by the impoverished conditions of telephone communication (reduced range of speech frequencies, absence of visual speech cues). Sound fidelity will vary across different telecommunication devices (landline, cell phone, VoIP, speakerphone). For videoconferencing, camera resolution, visual display

size, and lighting conditions add important variation to the information transmitted and received. Poor-quality sensory input affects the cognitive performance of persons with normal cognitive and sensory abilities and will likely be more problematic for persons with sensory and/or cognitive limitations.^{7,8}

- One cannot alter subtest items or mode of administration and assume the same cognitive abilities are assessed.* A participant may misperceive words (face vs faith) in the absence of visual speech cues. How loudly does a participant need to tap during the letter subtest for it to be audible over the telephone? Is a "missed" item due to perception problems on the part of the tester, the participant, or a lapse of attention? How does one ensure integrity in the testing environment (eg, participants writing down the words to remember)? It is difficult to gauge how well an examinee can engage or maintain attention in the absence of visual information. Finally, one cannot alter the mode of test stimulus delivery, or the mode of response, or the test items themselves and assume that the same cognitive constructs are being tested as in the original (eg, asking the participant to explain the trail making; as per the e-mail of March 20, 2020, and other proposed changes⁹).
- In the absence of studies using standardized conditions with well-described control and clinical participants with measured sensory abilities, the use of any cutoff score will be suspect and must be used with caution (if used at all).* We simply cannot assume that conventional cutoff scores will apply when there is variation (which is often unknown or unmeasured) in telecommunication devices, testing environments, and the sensory and cognitive abilities of examinees. Instead, we believe the MoCA can be used to generate clinical hypotheses and observations, to initiate a more extensive in-person assessment (when conditions allow), and to facilitate referral and case management. We strongly advise against any use of the MoCA during telemedicine for any medicolegal decision making.

The COVID-19 pandemic is having a far-reaching impact on our society, including how we offer clinical services and meet the needs of our aging population. Although we must adapt to the current reality, we must do so thoughtfully, having properly understood the sensory capabilities of our patients, and within the interpretive limits of nonstandardized test administrations.

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