Research Assessment 13

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Analysis:

During my week at Terrell State Hospital, I briefly heard about a patient who was suspected of malingering (faking mental illness) and how the psychiatrist my mentor and I were speaking to was assessing the situation. The psychiatrist mentioned how he suspected malingering for a plethora of reasons, one of which was the individuals terribly low score on the MoCA test. I remember my mentor mentioning that such as low score proved malingering because even a preschooler or individual with impairment could get a higher score. At the time, I did not know much about it other then that it sounded like the word mocha and that it was some type of psychiatric test. Later on, on Friday, Dr. Dunn explained to me what the MoCA test was and what it looked like. He showed me a copy of an actual test he gave to an individual who he was assessing before the individual was taking medications and a copy of the same test given after the medications. My mentor pointed out the specific tasks in the test that the individual was unable to properly do and briefly explained what it meant. However, I wanted to learn about the test more in depth and discover what certain score results meant.

To start off, I felt that some background information and history would be beneficial to understanding all aspects of the test. The first version of the MoCA test dates back to 1992, when it was created by Dr Ziad Nasreddine, a neurologist. The full name of the test is the Montreal Cognitive Assessment. According to the official website, Dr. Nasreddine perceived "the need for a more comprehensive cognitive screening adapted for clinicians" and as a result, developed "the first comprehensive but lengthy cognitive screening test." A few years later, in 1996, he decided to edit the test by creating a "much quicker comprehensive assessment" to help clinician with a high volume of patients. "From 1992 to 2000, the test went through many versions and adaptations before it was first validated in 2000 on a consecutive group of subjects that were referred to a memory clinic. All subjects were classified as cognitively intact

or impaired based on a gold standard neuropsychological assessment. The MoCA test's performance to distinguish the two groups was excellent." Now, the test is used by at least 100 countries around the globe.

The MoCA test was created to precisely measure cognitive impairment and comprehension which allows clinicians to utilize it as a cognitive brain scan in order to detect impairment, early stages of impairment, neurodegenerative diseases (Alzheimer's, dementia, etc). Since cognitive impairment and many neurological and systemic diseases are found together, the MoCA has been successfully able to detect both. "The MoCA has been found to be useful to detect mild cognitive impairment in many conditions including Alzheimer's disease, Vascular Cognitive Impairment, Parkinson's disease, Lewy Body, Fronto-temporal dementia, Multiple Sclerosis, Huntington disease, Brain Tumors, ALS, Sleep Apnea, Heart Failure, Substance abuse, Schizophrenia, HIV, and Head Trauma."

Of course, the MoCA has a rubric to measure results accurately. This 'rubric' is called the Memory Index Score, otherwise known as MoCA-MIS. It "consists of scoring the memory cueing section which was only assessed qualitatively." The Memory Index Score helps clinicians determine if patients have impairment and to what degree. Additionally, it allows clinicians to monitor high risk patients more closely and provide a more focused and selective forms of therapeutic intervention. The highest score one can receive on this test is a 30 out of 30. A score in the range of a 30 to 27 indicates no impairment in an individual. A score in between 26 to 18 usually indicates mild cognitive impairment while a score between 17 and 10 indicates moderate cognitive impairment. A score less than 10 signifies severe cognitive impairment. However, a score less than 10 is very unlikely because the test is designed in a way that even a elementary school student with impairment can get a score higher than a 10. Although it is possible for an individual to be severely impaired enough to get a score of less than a 10, many individuals with this score oftentimes are malingering. According to the official website, "the cut-off score of 18 is usually considered to separate [mild cognitive impairment] from [Alzheimer's Disease] but there is overlap in the scores since, by definition, [Alzheimer's Disease] is determined by the presence of cognitive impairment in addition to loss of autonomy. The average MoCA score for [mild cognitive impairment] is 22 (range 19-25) and the average MoCA score for Mild AD (11-21)." Additionally, a point

may be added to the total score if the individual taking the MoCA has 12 or less years of education, starting from first grade, disincluding kindergarten.

Each section has a specific purpose and is orientated towards interpreting a part of an individual's cognitive ability. The first part of the test focuses on visuospatial and executive functions. To determine this, the Montreal Cognitive Assessment asks the test taker to perform three different tasks. First, it asks test takers to connect numbers and letters in a logical and easy to understand manner. A test take simply has to connect the number 1 to the letter A, the letter A to the number 2 , the number 2 to the letter B., and so on. The second task may seem very simple to many, but is actually quite difficult for those with cognitive impairment. The MoCA asks the test taker to draw a cube and is even provided with a picture of a cube. The next executive task it to draw a clock and place the hands to show ten past eleven. Although many are able to do most of it, individuals mess up on various parts. Some cannot obtain the correct circular contour of a clock, while some cannot draw the hands in the correct position. Others start the clock at 1 instead of 12 and sometimes completely leave the 12 off. For completing these three tasks, the test taker can gain 5 points.

The next section asks the test taker to identify various animals. The naming potion simply asks the individual to write the name of 3 different animals. In alternative versions, different low-familiarity animals are presented. On the original version, the MoCA presents pictures of a lion, hippopotamus, and camel. By presenting 3 low-familiarity animals, the MoCA assesses individuals on their language and their ability to identify. Correctly naming an animal gains the individual 1 point and as a result, the entire section is worth 3 points.

Afterwards, the short-term memory recall of an individual is tested in the 'memory' portion of the test. This involves two learning trials of 5 nouns where the individual is asked to repeat the five words out loud and remember them. A clinician will usually inform the test taker to memorize the 5 words because they will be asked to recall them after approximately 5 minutes. The original MoCA's list of words are the following: face, velvet, church, daisy, and red. Each word is distinctly different in not only spelling but also in category. This is to help individuals remember the words easily. After the repetition of the words, the clinician continues administering the rest of the test. Then after 5 minutes the test taker is asked to recite the words without any cue or hints. If they cannot recall specific words or any words, a category cue is given. For

example, a type of flower would be the clue for the word “daisy.” Points for this section are only awarded for words recalled without a cue. The recall of each term awards 1 point so the total number of points for this section is 5 points. Interestingly enough, my mentor, Dr. Dunn, asked individuals he interviewed to complete a similar task. The only difference was that he only asked them to remember the following three words: goat, apple, blue. I noticed that he consistently repeated the same words and same category clues. If the individual was unable to recall even with category clues, he provided multiple choice options. For the animals he always listed lion, goat, and giraffe. For the fruit category, he listed apple, banana, and orange. Lastly, Dr. Dunn would offer the colors red, blue and green as answer choices. This was something Dr. Dunn consistently did every time he had a prolonged talk with patients in the ward at the hospital.

The next section, Attention, is the longest section and has three separate portions to it. It starts of by asking individuals to repeat the numbers 2, 1, 8, 5, and 4 in the forward order and then asks them to repeat the numbers 7, 4, 2 backwards. This awards the individuals two points , 1 for each repetition. The next test in this section assesses concentration by using a sustained attention task which is target detection using tapping. Basically, the clinician reads a list of letters out loud and the test taker is asked to tap with his hand at each letter A. If an individual makes 2 or more mistakes, no point is awarded. The next task is a serial subtraction task which asks the individual to subtract 7 starting at 100. The clinician is looking for the answers 93, 86, 79, 72, and 65 and can award 3 points if 4 or 5 of the subtractions are correct. For 2 or 3 correct, 2 points are given. 1 correct subtraction awds 1 point and 0 correct obviously awards 0 points. This task is a bit difficult for individuals without impairment because calculators, paper and pencil, and fingers are not allowed to do the subtractions. The task is meant to be done mentally.

Language is evaluated in more detail with two tasks which can award a total of 3 points if the tasks are performed correctly. First, the MoCA requests the test taker to repeat 2 syntactically complex sentences. As can be seen the copy of the test above, the first sentence is “I only know that John is the one to help today.” This repetition allows the clinician to evaluate the individual's fluency and ability to pronounce and enunciate properly. The last language orientated task is a phonemic fluency task where the test taker must name the most words they can in one minute that begin

with the letter F. Words such as fish, flag, flute, and frog are all examples of acceptable answers. To get the designated 1 point, the individual must list 11 or more words. This task not only evaluates language but also quick thinking and thinking under pressure. In many instances, some individuals have become so distressed that they are unable to continue and sometimes breakdown and begin crying.

The sixth section is called the abstraction section. This section tests the abstract thinking of an individual by presenting a two-item verbal abstraction task. In this task, the test taker must be able to explain the similarity between 2 words. An example would be banana and orange. The obvious and abstract answer is that they are both fruits. The two tested sets are the following: train and bicycle, and watch and ruler. The first set's similarity is that both are modes of transportation and the second is that they are both tools of measurement. However, those with impairment oftentimes give more concrete answers such as "a train and a bicycle both have wheels" and "a ruler and watch both have numbers." Those with severe impairment and/or illness or those malingering offer answers such as "a bicycle can turn into a train." Others might just say that the two aren't similar at all. Since there are two comparisons given, there are two points total if both are understood accurately.

FInally, the last section concentrates on an individual's orientation of time and place are evaluated. In the orientation portion of the MoCA, the test taker is asked for six various bits of information: the date, month, year, day, place and city. If I were taking the test for example, my reply would be the following: 03/18/16, March, 2016, Friday, at home, Plano. Most individuals are able to get at least half of these correct which signifies their ability to keep up with time and understand the passing of time. Additionally, it signifies that the individual is aware and have 'orientation'. This is important to test because those with severely disorganized thinking or mental illness might not be able to grasp the passage of time and where they are located. Although it isn't a big issue if an individual believes the day is Tuesday rather than Wednesday, it is a problem if they believe it is still November when it is fact March. Not being oriented can indicate if the individual has disorganized thinking, severe impairment, and/or a severe mental illness.

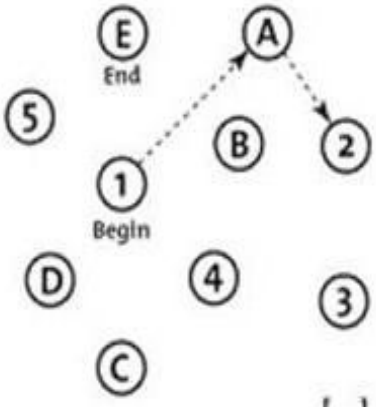
As can be seen, the MoCA is a simple test whose purpose is to identify impairment and mental illnesses in individuals. Each task is specifically geared to target certain aspects of the mind that can reveal the individual's mental status. Additionally,

the test is able to cater to a wide range of people. If the original MoCA that I evaluated is still too complicated to administer to a subject, there is a more simplified version called the MoCA Test Basic. The basic form serves to test illiterate individuals or those with lower education. If the original test is too long, a mini version is available to clinicians as well. There is also a test form available to administer to the blind which allows a greater number of people to be reached and evaluated. By evaluating the underlying meaning of each task from the Montreal Cognitive Assessment, I was able to learn in depth about how psychiatrists evaluate patients and/or clients. It was interesting to see a actual type of test used by psychiatrists rather than just knowing about testing in general. I was able to observe how the test and the questions Dr.Dunn asks to his patients are similar, and now I understand the implication and meaning behind them. I know that there are other tests out there that psychiatrists use and I plan on evaluating a few more in the future. Sneak Peak: My next assessment will undoubtedly be written on Rey's Fifteen Item Memory Test for Malingering.

MONTREAL COGNITIVE ASSESSMENT (MOCA)

NAME :
Education : Date of birth :
Sex : DATE :

VISUOSPATIAL / EXECUTIVE



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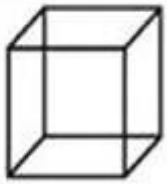


[ ] [ ]

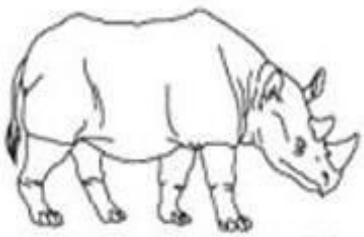
Draw CLOCK (Ten past eleven) (3 points)

[ ] Contour [ ] Numbers [ ] Hands

POINTS __/5

NAMING

[ ]



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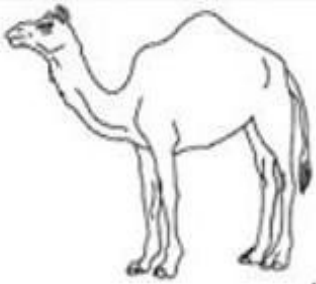

[ ]

__/3

MEMORY

Read list of words, subject must repeat them. Do 2 trials. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION

Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [ ] 2 1 8 5 4

Subject has to repeat them in the backward order [ ] 7 4 2

__/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

__/1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65

4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt**

__/3

LANGUAGE

Repeat : I only know that John is the one to help today. [ ]

The cat always hid under the couch when dogs were in the room. [ ]

__/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] ____ (N ≥ 11 words)

__/1

ABSTRACTION

Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler

__/2

DELAYED RECALL

	Has to recall words WITH NO CUE	FACE [ ]	VELVET [ ]	CHURCH [ ]	DAISY [ ]	RED [ ]	Points for UNCUED recall only
Optional	Category cue						
	Multiple choice cue						

__/5

ORIENTATION

[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

__/6

www.mocatest.org

Normal ≥ 26 / 30

TOTAL __/30

Add 1 point if ≤ 12 yr edu