Montreal Cognitive Assessment (MoCA)

Administration and Scoring Instructions

The Montreal Cognitive Assessment (MoCA) was designed as a rapid screening instrument for mild cognitive dysfunction. It assesses different cognitive domains: attention and concentration, executive functions, memory, language, visuocognitive skills, conceptual thinking, calculations, and orientation. Time to administer the MoCA is approximately 10 minutes. The total possible score is 30 points; a score of 26 or above is considered normal.

1. **Alternating Trail Making:**

   **Administration:** The examiner instructs the subject: "అన్నిమీది అన్ని పదాలు అవి కల్పించండి. అవి ఒక అన్ని పదాలను కల్పించండి. అన్ని పదాలు బాప్పిడిగా కండండి (11 పై భాగంలో). '1' వన్నాడు ' 2 ', ' 3 ' వన్నాడు ' 2 ' ఫిబిడం ' 3 ' వన్నాడు ' 3 ' ఫిబిడం ' 3 ' వన్నాడు (11 పై భాగంలో)."

   **Scoring:** Allocate one point if the subject successfully draws the following pattern: 1 - 2 - 3 - 4 - 5 - 6 , without drawing any lines that cross. Any error that is not immediately self-corrected earns a score of 0.

2. **Visuoconstructional Skills (Cube):**

   **Administration:** The examiner gives the following instructions, pointing to the cube: "బాప్పిడి లేదా చాలా బాప్పిడి అయితే చాలా బాప్పిడి గాని గాని (copy చాలా బాప్పిడి)."

   **Scoring:** One point is allocated for a correctly executed drawing.
   - Drawing must be three-dimensional
   - All lines are drawn
   - No line is added
   - Lines are relatively parallel and their length is similar (rectangular prisms are accepted)

   A point is not assigned if any of the above-criteria are not met.

3. **Visuoconstructional Skills (Clock):**

   **Administration:** Indicate the right third of the space and give the following instructions: "అంతరంగా నేటి గాని గాని నేటి గాని 11 గాని 10 గాని గాని గాని 10 గాని గాని గాని..."

   **Scoring:** One point is allocated for each of the following three criteria:
   - Contour (1 pt.): the clock face must be a circle with only minor distortion acceptable (e.g., slight imperfection on closing the circle);
   - Numbers (1 pt.): all clock numbers must be present with no additional numbers; numbers must be in the correct order and placed in the approximate quadrants on the clock face; Roman numerals are acceptable; numbers can be placed outside the circle contour;
   - Hands (1 pt.): there must be two hands jointly indicating the correct time; the hour hand must be clearly shorter than the minute hand; hands must be centred within the clock face with their junction close to the clock centre.

   A point is not assigned for a given element if any of the above-criteria are not met.
4. **Naming:**

**Administration:** Beginning on the left, point to each figure and say: “ఈ ఎనిమిద విషయం ఉంది.”

**Scoring:** One point each is given for the following responses: (1) lion (2) rhinoceros or rhino (3) camel or dromedary.

5. **Memory:**

**Administration:** The examiner reads a list of 5 words at a rate of one per second, giving the following instructions: “ఒక గ, ఒక గ, ఒక గ, ఒక గ, ఒక గ.” Mark a check in the allocated space for each word the subject produces on this first trial. When the subject indicates that (s)he has finished (has recalled all words), or can recall no more words, read the list a second time with the following instructions: “ఒక గ, ఒక గ, ఒక గ, ఒక గ, ఒక గ.” Put a check in the allocated space for each word the subject recalls after the second trial. At the end of the second trial, inform the subject that (s)he will be asked to recall these words again by saying, “ఆ గ, ఆ గ, ఆ గ.”

**Scoring:** No points are given for Trials One and Two.

6. **Attention:**

**Forward Digit Span:** **Administration:** Give the following instruction: “ఒక 2 క, ఒక 4 క, ఒక 7.” Read the five number sequence at a rate of one digit per second.

**Backward Digit Span:** **Administration:** Give the following instruction: “ఆ 7 క, ఆ 4 క, ఆ 2.” Read the three number sequence at a rate of one digit per second.

**Scoring:** Allocate one point for each sequence correctly repeated, (N.B.: the correct response for the backwards trial is 2-4-7).

**Vigilance:** **Administration:** The examiner reads the list of letters at a rate of one per second, after giving the following instruction: “ఒక గ, ఒక గ, ఒక గ, ఒక గ.” If there is zero to one errors (an error is a tap on a wrong letter or a failure to tap on letter ‘ ’).

**Scoring:** Give one point if there is zero to one errors (an error is a tap on a wrong letter or a failure to tap on letter ‘ ’).
Serial 7s: Administration: The examiner gives the following instruction: “ఏ, ఆ, ఆ, కాక ఆ, కాక ఆ, అంటే ఆ.” Give this instruction twice if necessary.

Scoring: This item is scored out of 3 points. Give no (0) points for no correct subtractions, 1 point for one correction subtraction, 2 points for two-to-three correct subtractions, and 3 points if the participant successfully makes four or five correct subtractions. Count each correct subtraction of 7 beginning at 100. Each subtraction is evaluated independently; that is, if the participant responds with an incorrect number but continues to correctly subtract 7 from it, give a point for each correct subtraction. For example, a participant may respond “92 – 85 – 78 – 71 – 64” where the “92” is incorrect, but all subsequent numbers are subtracted correctly. This is one error and the item would be given a score of 3.

7. Sentence repetition:

Administration: The examiner gives the following instructions: “ఈ ఏ, ఆ, ఆ, కాక ఆ, కాక ఆ, అంటే ఆ.” Following the response, say: “ఈ ఏ, ఆ, ఆ, కాక ఆ, కాక ఆ, అంటే ఆ.” Scoring: Allocate 1 point for each sentence correctly repeated. Repetition must be exact. Be alert for errors that are omissions (e.g., omitting "only", "always") and substitutions/additions (e.g., "John is the one who helped today;" substituting "hides" for "hid", altering plurals, etc.). [Note: Original sentences are, "I only know that John is the one to help today" and "The cat always hid under the couch when dogs were in the room"]

8. Verbal fluency:

Administration: The examiner gives the following instruction: “ఈ ఏ, ఆ, ఆ, కాక ఆ, కాక ఆ, అంటే ఆ.” Scoring: Allocate one point if the subject generates 11 words or more in 60 sec. Record the subject’s response in the bottom or side margins.

9. Abstraction:

Administration: The examiner asks the subject to explain what each pair of words has in common, starting with the example: “ఒక కాక ఏ కాక.” If the subject answers in a concrete manner, then say only one additional time: “ఈ ఏ, ఆ, ఆ, కాక ఆ, అంటే ఆ.” Scoring: Only the last two item pairs are scored. Give 1 point to each item pair correctly answered. The following responses are acceptable:

Train-bicycle = means of transportation, means of travelling, you take trips in both;
Ruler-watch = measuring instruments, used to measure.
The following responses are not acceptable: Train-bicycle = they have wheels;
Ruler-watch = they have numbers.

10. Delayed recall:

Administration: The examiner gives the following instruction: “రెండు వించించి మీ నంబరు, మీకు రాయినా, మీకు రాయినా.” Make a check mark (√) for each of the words correctly recalled spontaneously without any cues, in the allocated space.

Scoring: Allocate 1 point for each word recalled freely without any cues.

Optional:
Following the delayed free recall trial, prompt the subject with the semantic category cue provided below for any word not recalled. Make a check mark (√) in the allocated space if the subject remembered the word with the help of a category or multiple-choice cue. Prompt all non-recalled words in this manner. If the subject does not recall the word after the category cue, give him/her a multiple choice trial, using the following example instruction, “ఎందుకు వారిన నంబరు ఽ ఱడాడంది. కాకపోయే వారించ రోజు?”
Use the following category and/or multiple-choice cues for each word, when appropriate:

<table>
<thead>
<tr>
<th>Word</th>
<th>Category Cue</th>
<th>Multiple Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>కామన్</td>
<td>రోజులు అడుగు</td>
<td>రోజు, నంబరు, బిందుస్థలం</td>
</tr>
<tr>
<td>గాంధీ</td>
<td>దానిలో మనుగాంధీ</td>
<td>మనుగాంధీ, గాంధీ, దానిలో</td>
</tr>
<tr>
<td>గామర్చే</td>
<td>గాంధీ దానిలో</td>
<td>గాంధీ, నంబరు, బిందుస్థలం</td>
</tr>
<tr>
<td>నడియిం</td>
<td>బిందుస్థలం అడుగు</td>
<td>బిందుస్థలం, నంబరు, రోజులు</td>
</tr>
</tbody>
</table>

Scoring: No points are allocated for words recalled with a cue. A cue is used for clinical information purposes only and can give the test interpreter additional information about the type of memory disorder. For memory deficits due to retrieval failures, performance can be improved with a cue. For memory deficits due to encoding failures, performance does not improve with a cue.

11. Orientation:

Administration: The examiner gives the following instructions: “మే ఎందుకు ఎందుకు ఎందుకు ఎందుకు?”. If the subject does not give a complete answer, then prompt accordingly by saying: “మే ఎందుకు (హోస్పిటల్, క్లినిక్, నంబరు).” “ఎందుకు ఎందుకు ఎందుకు ఎందుకు?”. The subject must tell the exact date and the exact place (name of hospital, clinic, office). No points are allocated if subject makes an error of one day for the day and date.

Scoring: Give one point for each item correctly answered. The subject must tell the exact date and the exact place (name of hospital, clinic, office). No points are allocated if subject makes an error of one day for the day and date.

TOTAL SCORE: Sum all subscores listed on the right-hand side. Add one point for an individual who has 12 years or fewer of formal education, for a possible maximum of 30 points.
A final total score of 26 and above is considered normal.