

Cognitive test performance documentation

MoBa Brain Health

Memoro Digit-Symbol Coding task

First and second-generation participants aged 16 years and older were invited to participate in the MoBa Brain Health Study November 2022 through February 2023.

The Norwegian Mother, Father and Child Cohort Study
(MoBa)

Version	Date	Performed by	Description
1.0	09.04.2026	Asta Håberg Tor Ivar Hansen	Original version

Instrument

1. Name of original instrument:

Memoro Digit-Symbol Coding task

2. Description of original scale or selection of items used

Test of executive function and one-trial learning and memory (episodic memory).

The participant sees a 2x9 table (key) with 9 symbols above 9 digits from 1 to 9. Below is a table with symbols but without numbers. Using the key, the participant fills in numbers below the symbols to complete as many symbol-digit pairs as possible within 90 seconds. After 90 seconds the task ends automatically. Subsequently, a surprise recall comes up. The key is no longer presented, and the participant is tasked with adding the appropriate digit below the 9 symbols which are presented in a random order.

Scoring is based on the maximal number of successfully digit-symbol pairings and number of correctly recalled digit-symbol pairs.

Results where there are a similar count of correct and erroneous responses, or where there are more erroneous responses than correct indicate low effort or random responses and should be considered invalid.

Name of variables:

cod_TotalCorrect: Number of correct responses

cod_TotalError: Number of erroneous responses

*cod_score: Correct responses minus erroneous responses

cod_Disc: Measure of correct response precision (signal detection theory)

cod_ImmRec_TotalCorrect: Number of correctly recalled digit-symbol pairings

cod_ImmRec_TotalScore: Number of correctly recalled digit-symbol pairings minus number of erroneously recalled digit-symbol pairings

cod_ImmRec_TotalError: Number of erroneously recalled digit-symbol pairings

*Primary variable

Metadata for this test is the automatically generated response object that contains all individual responses and their respective time stamps and data.

Sample metadata for a single response:

```
{"id": 4, "style": "trialCorrect", "trial": 22, "value": "6", "timestamp": 1511209484415}
```

3. Rationale for choosing the instrument:

Well-known basic executive test used in neuropsychological practice.

4. Modifications:

NA