Cognitive test performance documentation MoBa Brain Health

Memoro ***Complex reaction time***

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	09.04.26	Asta Håberg Tor Ivar Hansen	Original version

Instrument

1. **Name of original instrument:**
   Memoro Complex Reaction Time

2. **Description**

A continuous performance test variant. Participants are presented with a white box on the screen and asked to click inside the box as fast as possible each time the box turns blue and to not click if the box turns another color (red, green, or yellow). There were 40 trials in total (80% Go-trials) and three ISIs (1000 ms / 2000 ms / 4000 ms).
Measures for each stimulus are reaction time (RT), ISI, and whether the response was a valid response, an omission or commission.
It is recommended to exclude all trials with RT < 100ms as these are not considered legitimate. RT in the higher end should also be considered for exclusion as they may represent laps of attention, interruptions, technical issues etc. It is advised to exclude all the participants who have more than 50 commissions as this indicate a strategy aimed at speed not accuracy and/or fatigue or boredom.
Valid responses are: when participant clicked or tapped in response to blue box correct GO trial, and absence of response to green, yellow or red boxes, correct-NOGO trial.
Omissions are: when participant does not respond to the presentation of a blue box.
Commissions are: when participant responds to boxes colored red, green or yellow.

Variable	Description	Format
Crt_TotalValid:	Total number valid responses	Numeric
Crt_TotalCommisions	Total number responses when responses should not have been made	Numeric
Crt_TotalOmmissions	Total number non-responses when responses should have been made	Numeric
Crt_Disc:	Discriminability or detectability measure (also called d', d-prime), relationship between signal (correct responses) and noise (incorrect responses)	String
Crt_Mean_RT_all	Mean reaction time across all valid responses	String
Crt_SD_RT_all	Standard deviation for reaction time (RT) across all valid responses	String
Crt_Mean_RT_1000isi	Mean reaction time across all valid responses for stimuli with interstimulus interval 1000 ms	String
Crt_SD_RT_1000isi	Standard deviation for reaction time (RT) across to stimuli with 1000 ms interstimulus interval across all valid responses	String
Crt_Mean_RT_2000isi	Mean reaction time across all valid responses for stimuli with interstimulus interval 2000 ms	String
Crt_SD_RT_2000isi	Standard deviation for reaction time (RT) across to stimuli with 2000 ms interstimulus interval across all valid responses	String
Crt_Mean_RT_4000isi	Mean reaction time across all valid responses for stimuli with interstimulus interval 4000 ms	String
Crt_SD_RT_4000isi	Standard deviation for reaction time (RT) across to stimuli with 4000 ms interstimulus interval across all valid responses	String

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:
{"isi": 2000, "type": "input", "color": "back-blue", "trial": 1, "value": 355, "status": "valid", "timestamp": 1511121122334}

3. **Rationale for choosing the instrument:**
   Complex reaction time assesses reaction time and cognitive control.
   The test is a variant of a continuous performance test (CPT) such as non-x CCT or Connors CPT.

4. **Modifications:**
   NA