ForeKnow

Cognitive Assessment Report

Date: October 26, 2023

Overview:

This report presents an analysis of cognitive performance based on a series of digital tasks and speech/sentiment metrics. The assessment includes measures of processing speed (Stroop Colour), memory recall, object-purpose matching (placeholder), speech fluency, lexical diversity, and sentiment analysis of spoken language. The goal is to provide a preliminary indication of cognitive function and identify areas that may warrant further investigation.

Metrics Explanation:

* Stroop Colour: Measures cognitive processing speed and selective attention, specifically the ability to inhibit cognitive interference that occurs when the processing of a specific stimulus feature impedes the simultaneous processing of a second stimulus attribute. Higher scores in this context (reaction time) indicate slower processing and potentially reduced cognitive flexibility.
* Memory Game: Quantifies short-term memory and working memory capacity. This metric reflects how well the individual can encode, store, and retrieve information over a short period.
* Image Recall: Assesses visual memory and retrieval abilities. A higher score signifies better retention and recall of visual information.
* Object-Purpose Matching: (Currently a placeholder with a score of 0). This would typically measure the ability to associate objects with their intended functions, reflecting semantic memory and executive function.
* Speech Metrics: These parameters offer insights into speech fluency, pause patterns, and lexical diversity. Reduced fluency, increased pause density, and lower lexical diversity can be indicative of cognitive challenges.
* Sentiment Analysis: Evaluates the emotional tone and content of speech, providing a measure of expressed sentiment. Changes in sentiment or a predominance of negative sentiment can correlate with mood disorders or cognitive changes.

Memory Game Analysis:

The score of 2 on the memory game suggests notable difficulty in short-term memory and working memory. It indicates a potential struggle to encode and recall information presented visually. This could be related to problems with attention, encoding strategies, or storage capacity in working memory.

Image Recall:

An image recall score of 30 suggests relatively good visual memory. The individual demonstrates the ability to retain and recall visual information, suggesting that visual encoding and retrieval processes are functioning adequately.

Stroop Colour:

A Stroop Colour score of 310 indicates a slower reaction time and potentially impaired executive function, specifically inhibitory control. This suggests that the individual experienced difficulty suppressing the automatic response (reading the word) in favor of the less habitual response (naming the color). This difficulty in inhibiting cognitive interference could be indicative of reduced cognitive flexibility or processing speed.

Speech Analysis:

The speech metrics reveal the following patterns:

* Total time: File 1 (2.12 sec), File 2 (1.9 sec).
* Total pause time: File 1 (2.12 sec), File 2 (1.9 sec).
* Pause density: 50% for both files, which is relatively high.
* Repeated words: 0 in both files.
* Filler words: 0 in both files.
* Lexical diversity: 100% for both files. The unique words are only 2 and 6 respectively, which are too low to have a reliable percentage for lexical diversity.
* Speech fluency: 90 words/sec for both files, which is unrealistic.

The high pause density, combined with a very short recording time, suggests that speech is very slow. The number of words uttered appears to be low for a seemingly high speech fluency rate. The utterance needs to be timed properly in order to deduce reliable speech fluency. It's possible that total recording time is shorter than the pause time, which is an error.

Sentiment Analysis:

The sentiment analysis reveals the following:

* File 1: Neutral sentiment with a weighted score of 55.013.
* File 2: Negative sentiment with a weighted score of 41.546.
* Combined Sentiment: Negative with a weighted score of 44.716.

The shift towards negative sentiment in the second file, and the overall negative combined sentiment, may indicate a change in mood or emotional state. This could be related to the task demands, frustration, or underlying emotional factors.

Transcript of audio provided: 2 shockOkay, today weather is too hot.

Heuristic Cognitive Risk Assessment:

Based on the available data, the following observations are made:

* Memory: The low memory game score raises a concern for potential short-term memory impairment.
* Executive Function: The elevated Stroop score suggests impaired executive function, particularly inhibitory control.
* Speech: The high pause density and very low number of words suggest possible speech fluency issues or cognitive slowing. Given that the time of the sentence is so short and the pause density is also high and coincides with the time, it is possible that metrics related to speech may not be reliable.
* Sentiment: The negative sentiment may warrant further exploration of mood and emotional well-being.

Integrated Interpretation:

The combination of impaired short-term memory (Memory game), slowed processing speed and reduced inhibitory control (Stroop Colour), potentially disrupted speech patterns, and negative sentiment suggests the possibility of mild cognitive impairment. However, it's important to note that these results are preliminary and can be influenced by various factors, including stress, fatigue, and medication. The unusually high values of the speech fluency seem unrealistic and require validation of the metrics used to derive it.

Recommendations:

1. Comprehensive Neuropsychological Evaluation: Referral for a full neuropsychological assessment to evaluate cognitive domains in detail, including memory, executive function, attention, language, and visuospatial skills.
2. Speech and Language Assessment: If speech fluency issues persist, a consultation with a speech-language pathologist is recommended.
3. Mood Assessment: Further evaluation of mood and emotional state to rule out underlying mood disorders.
4. Medical Review: A thorough medical review to identify any underlying medical conditions or medications that may be contributing to cognitive changes.
5. Lifestyle Modifications: Encourage healthy lifestyle habits, including regular physical exercise, a balanced diet, adequate sleep, and cognitive stimulation activities.

It is a test done by AI; if the score is too high it is suggested to consult a doctor immediately, if not then also it is better to meet a doctor.

IMPORTANT DISCLAIMER

It is a test done by AI; if the score is too high it is suggested to consult a doctor immediately, if not then also it is better to meet a doctor.