ForeKnow

Cognitive Assessment Report

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Overview:

This report presents an analysis of cognitive performance based on several digital cognitive tasks and speech analysis. The tasks included Stroop Colour Naming, Memory Recall, and Object-Purpose Matching (represented by Image Recall due to missing Object-Purpose Matching data). Speech metrics (pauses, fillers, lexical diversity) and sentiment analysis were also conducted on the provided audio transcript. This assessment aims to provide a preliminary indication of cognitive status and potential areas of concern.

Metrics Explanation:

* Stroop Colour: Measures the ability to inhibit cognitive interference. A lower score suggests difficulty in suppressing the automatic response of reading a word when the word's colour conflicts with the meaning.
* Memory Game: Evaluates short-term and working memory. A higher score indicates better memory performance.
* Image Recall: Assesses visual memory and recall ability. A higher score reflects better recall. Since Object-Purpose Matching data is absent, Image Recall serves as a placeholder, but its relevance to object-purpose association is limited.
* Total Time (Speech): Duration of the audio recording in seconds.
* Total Pause Time (Speech): Cumulative duration of pauses within the audio recording in seconds.
* Pause Density (%): Percentage of total time spent pausing. Higher pause density might indicate hesitation, word-finding difficulties, or cognitive processing delays.
* Repeated Words (Speech): Number of times words were repeated within the audio.
* Filler Words (Speech): Number of filler words (e.g., "um," "ah") used in the audio.
* Filler Frequency (%): Percentage of total words that are filler words. Higher filler frequency can be associated with speech disfluency, anxiety, or cognitive effort.
* Unique Words (Speech): Number of unique words used in the audio.
* Lexical Diversity (%): Ratio of unique words to total words, reflecting the breadth of vocabulary. Lower lexical diversity can indicate reduced language skills or word-finding difficulties.
* Speech Fluency (words/sec): Rate of speech, calculated as words spoken per second. Reduced fluency may reflect cognitive impairment or speech difficulties.
* Sentiment Analysis: Assesses the emotional tone of the audio. The analysis provides a sentiment label (positive, negative, neutral) and a weighted score reflecting the strength and direction of the sentiment.

Memory Game Analysis:

The memory game score is 1. This suggests very poor performance on the short-term memory task. However, without understanding the task's difficulty and scoring methodology, it is difficult to interpret the severity of this

finding definitively. Further assessment with more complex memory tasks is warranted.

Image Recall:

The Image Recall score is 0. Given that this is acting as a proxy for Object-Purpose Matching due to missing data, the interpretation is limited. A score of 0 suggests either a failure to recall any images or an absence of attempted recall. A dedicated object-purpose matching task would provide far more valuable insights into associative memory.

Stroop Colour:

The Stroop Colour score is 29. This result falls within the range often associated with mild difficulty in cognitive processing speed and executive function, especially inhibitory control. It suggests some difficulty in suppressing the automatic reading response in favour of naming the colour. Further investigation is warranted to determine the impact on daily functioning.

Speech Analysis:

The speech analysis reveals the following:

* Total Time: 1.86 seconds. Very short audio sample.
* Total Pause Time: 1.86 seconds. The audio consists entirely of pauses, this is suspicious.
* Pause Density: 50.0%. Since the total time equals total pause time, the speech analysis is highly irregular.
* Repeated Words: 1.0. The word "bye" was likely repeated
* Filler Words: 0.0.
* Filler Frequency: 0.0%.
* Unique Words: 1.0.
* Lexical Diversity: 33.33%. Low lexical diversity, influenced by the short utterance.
* Speech Fluency: 75.17 words/sec. The software seems to be calculating based on total time even though the audio consists of pauses.

Given the very short length of the audio and the extreme pause density, the speech metrics are unreliable and difficult to interpret. It's impossible to gain useful insights from this audio sample. The high pause density is a significant anomaly.

Sentiment Analysis:

The sentiment analysis indicates a "positive" sentiment with a weighted score of 67.288. The probability distribution suggests a moderate level of positive sentiment. The transcript "Ok, bye bye" naturally carries a positive connotation. However, the context surrounding this utterance is crucial for a more accurate interpretation. The sentiment should be viewed cautiously, especially given the limited amount of speech data.

Heuristic Cognitive Risk Assessment:

Based on the available data, there are indicators of potential cognitive concerns:

* Low Memory Game score: Suggests possible short-term memory impairment.
* Low Image Recall score: Could indicate visual memory issues, but requires confirmation with an object-purpose association task.
* Stroop Colour score: The Stroop score indicates mild difficulty in cognitive processing speed and executive function.
* Anomalous Speech Metrics: The high pause density and short audio duration make the speech metrics unreliable, but raise concerns about potential speech or cognitive issues.

Integrated Interpretation:

The combined results suggest the possibility of mild cognitive impairment affecting memory, executive function, and potentially speech. The extremely high pause density in speech is the most concerning feature, but the short audio length limits confidence. The positive sentiment should be interpreted within the context of the utterance "Ok, bye bye". These findings warrant further, more comprehensive cognitive and neurological evaluation.

Recommendations:

1. Comprehensive Cognitive Assessment: Referral to a neuropsychologist or cognitive neurologist for a detailed assessment of cognitive functions, including memory, executive function, language, and visuospatial abilities.
2. Speech and Language Evaluation: Given the anomalous speech metrics, a speech and language evaluation is recommended to assess speech fluency, articulation, and language skills.
3. Neurological Examination: A thorough neurological examination is recommended to rule out any underlying neurological conditions.
4. Repeat Digital Cognitive Testing: Repeat the digital cognitive tests with longer speech samples to obtain more reliable speech metrics.
5. Consider Additional Testing: Consider additional tests such as blood tests (B12, thyroid) and neuroimaging (MRI) to rule out reversible causes of cognitive impairment and to assess brain structure.

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

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