

Description of the outputs of the Wisconsin Card Sorting Test (WCST)

1.Number of categories completed. It refers to the correct sequences of ten consecutive correct matches to the criterion sorting category. The sequence length depends on the experiment. And the maximum number of categories is usually six.

When people are unable to maintain an adequate strategy, they will complete a lower number of categories.

2.The items or trials to complete the first category. It refers to the number of responses that the participant must provide to complete correctly the first category.

According to previous studies, it takes longer to reach first category when executive functions are compromised.

3.Number of trials to complete the WCST.

4.Total correct responses.

5.Total errors or incorrect responses.

6.Percentage of total errors.

7.Total perseverative responses. A response could be perseverative but not necessarily is considered an error but a correct response. For instance, the chosen response could match two characteristics of the stimulus, one of them can be a characteristic from the previous category, and the other one can be one that match the new classification criteria. Thus, the response is perseverative, but it is not considered an incorrect answer or a perseverative error. For example, the previous category was colour, and the new one is shape. Participants have four choices and in two of them, the cards have the same shape but distinct colour, the participant chooses the right shape, but also chooses the symbols with the same colour that was a matching criterion in the previous category. Then, the response is correct but perseverative.

8. Percentage of perseverative responses. It is calculated by dividing the number of perseverative responses by the total responses given to complete the WCST, multiplying the result by one hundred, and rounding the result.

9. Total perseverative errors. It refers to the persistence to respond according to an incorrect criterion or stimulus characteristics.

10. Percentage of perseverative errors. It is calculated by dividing the number of perseverative errors by the total responses given to complete the WCST, multiplying the result by one hundred, and rounding the result.

However, it is important to notice that when the experiment begins, the first time that the participant provides a perseverative response is not considered a perseverative error, but after the first category is completed, the following perseverative responses will be considered perseverative errors. If there are several practice trials before the experimental trials start, then, the incorrect perseverative responses will be considered a perseverative error from the beginning.

We can observe that people with altered executive functions, show perseverative responses, they struggle to switch their mind and adapt the responses to the new matching rule.

11. Total non-perseverative errors. It refers to the errors that are not considered perseverative responses.

When a new category appears, there will be some non-perseverative errors to adjust the response to the new matching criteria.

12. Percentage of non-perseverative errors. It is calculated by dividing the number of non-perseverative errors by the total responses given to complete the WCST, multiplying the result by one hundred, and rounding the result.

13.The frequency of failure to maintain set or set-loss errors. It refers to a category where the participant provided five or more correct matches, but at least one error is registered before successfully completing the category. The number of correct matches and the number of errors to consider the set-loss errors, depends on the experiment.

When people experience executive deficits, they show difficulty shifting the mind set but also inhibiting an alternative response or inhibiting to try a new classification criterion, even if they get the appropriate feedback.

14.Conceptual Level Responses. This index is associated with the ability of understanding the principles or rules of classification. When a participant provides three or more consecutive correct responses, we can infer that there is a comprehension of the right strategy to answer correctly, and the response is not only due to chance.

15.Percentage of Conceptual Level Responses.