

# Neurocognitive Predictors of Quality of Life of Patients with Schizophrenia

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## Introduction

Recent investigations tried to establish a causal relationship between neurocognitive deficits and functional outcomes (Green et al., 2000). However, in studies that used quality of life as the primary functional variable, mixed results were found. In some studies associations with neurocognition were strong, but in others, the associations were weak or inexistent (Alptekin et al., 2005; Fujii, Wylie & Nathan, 2004; Hofer et al., 2005; Sota & Heinrichs, 2004; Weneger et al., 2005).

## Purpose

The purpose of this study was to examine the impact and interference of neurocognitive impairment in different aspects of the quality of life of patients with schizophrenia. To achieve this goal, we tried to identify differential neurocognitive predictors of discrete quality of life domains, and to calculate the amount of explained variance accounted for by neurocognitive variables.

## Methods

Sample consisted of 37 individuals diagnosed with schizophrenia. All subjects were assessed with a battery of neurocognitive tests (WCST, WAIS-III selected subtests, Stroop Test, Rey Figure Complex Test, d2 Attention Test, IA Test). For the assessment of quality of life, we used the WHOQOL – Portuguese Version (Vaz-Serra et al., 2006). We performed stepwise multiple regression analysis, in order to determine predictive models of quality of life.

### Neurocognitive parameter's:

- Attention
- Visual-spatial organization and memory
- Working memory
- Speed processing
- Verbal Skills
- Social sequencing skills
- Arithmetic's and logical reasoning
- Executive functions
- General Intellectual ability

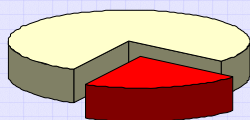
**Quality of life:** The WHOQOL-BREF instrument comprises 26 items, which measure the following broad domains:

- Physical health
- Psychological health
- Social relationships
- Environment

## Results and Discussion

Stepwise multiple regressions predicting Physical health, and amount of variance accounted for by neurocognitive variables (marked with red in the graphic)

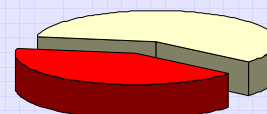
|                        | (adj) F      | sig.    | R <sup>2</sup> | β      | T      | sr <sup>2</sup> | sig.    |
|------------------------|--------------|---------|----------------|--------|--------|-----------------|---------|
| Global Model           | (1.35) 9.540 | 0.004** | 0.214          |        |        |                 |         |
| Predictors             |              |         |                |        |        |                 |         |
| % Perseverative Errors |              |         |                | -0.463 | -3.089 | 0.214           | 0.004** |



\* p<0.050 \*\* p<0.010 \*\*\* p<0.001

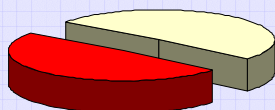
Stepwise multiple regressions predicting Social relationships and amount of variance accounted for by neurocognitive variables (marked with red in the graphic)

|                     | (adj) F       | sig.     | R <sup>2</sup> | β     | T     | sr <sup>2</sup> | sig.    |
|---------------------|---------------|----------|----------------|-------|-------|-----------------|---------|
| Global Model        | (2.34) 12.099 | 0.000*** | 0.416          |       |       |                 |         |
| Predictors          |               |          |                |       |       |                 |         |
| Total Score d2 Test |               |          |                | 0.410 | 2.860 | 0.141           | 0.007** |
| Rey - Copy          |               |          |                | 0.357 | 2.491 | 0.106           | 0.018*  |



Stepwise multiple regressions predicting Psychological health, and amount of variance accounted for by neurocognitive variables (marked with red in the graphic)

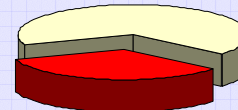
|                     | (adj) F       | sig.     | R <sup>2</sup> | β     | T     | sr <sup>2</sup> | sig.    |
|---------------------|---------------|----------|----------------|-------|-------|-----------------|---------|
| Global Model        | (2.34) 16.200 | 0.000*** | 0.488          |       |       |                 |         |
| Predictors          |               |          |                |       |       |                 |         |
| Rey - Copy          |               |          |                | 0.445 | 3.309 | 0.165           | 0.002** |
| Total Score d2 Test |               |          |                | 0.387 | 2.882 | 0.125           | 0.007** |



\* p<0.050 \*\* p<0.010 \*\*\* p<0.001

Stepwise multiple regressions predicting the Environment dimension and amount of variance accounted for by neurocognitive variables (marked with red in the graphic)

|                        | (adj) F      | sig.     | R <sup>2</sup> | β      | T      | sr <sup>2</sup> | sig.   |
|------------------------|--------------|----------|----------------|--------|--------|-----------------|--------|
| Global Model           | (2.34) 8.505 | 0.001*** | 0.333          |        |        |                 |        |
| Predictors             |              |          |                |        |        |                 |        |
| Stroop-Colors          |              |          |                | 0.358  | 2.336  | 0.107           | 0.026* |
| % Perseverative Errors |              |          |                | -0.331 | -2.163 | 0.092           | 0.038* |



There were significant correlations between most of the neurocognitive constructs and quality of life. Predictive models explained 21% to 49% of the variance in the domains of quality of life that we considered. Significant neurocognitive predictors were the following: for the Physical domain, the executive functions; for the Psychological and Social Relations domains, attention and visual-spatial organization; and for the Environmental domain, the executive functions and attention. These results highlight the need to work the cognitive deficits in order to promote the quality of life of persons with schizophrenia.

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