Shall we use non-verbal fluency as a neuropsychological tool in schizophrenia?- A pilot study.

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In the field of neuropsychology, there are mainly two different ways to consider *verbal fluency*. The first view concerns a linguistic ability that implies to begin and end a given sentence in a given rhythm while respecting the coherence and conjunctions. In other words, *fluency* represents here a multiple words ability. It refers both to the content and the form of the speech that ensure a fluent, fluid, meaningful and structured discourse. The second view concerns *fluency* in terms of neuropsychological tasks in which the experimenter focus on how to mobilize both semantic and cognitive skills by asking the subject to produce as many words as possible within one or two minutes in accordance with a semantic category, letter or category of words (verbs, uses of an object, etc.). In a more abstract and conceptual view, each meaning of the *fluency* (ability/task/kind of task) rely on the same concept of yield and efficiency. And in terms of neuropsychological assessment, efficiency is a key concept to comprehend, because of its tight links with daily living issues (autonomy, socio-professional abilities, etc.), but also because it might bring a more global view of executive functioning; namely how executive functions work together to enable the subject to perform at his best. Nevertheless, considering the fact that schizophrenics commonly show impairments in several linguistic fields (e.g. unusual use of words, neologisms, perseverations, poverty of speech, etc.), asking a subject with schizophrenia to be verbally efficient can potentially lead to misinterpretations. Nevertheless, we can still focus on efficiency in a non-verbal way.

The aim our study is to assess the ability of the Five Points/5PT test in differentiating healthy subjects and schizophrenics and to explore its potential links with global executive functioning and specific components of psychosis as symptoms and groups of symptoms.

We recruited 24 schizophrenics in several mental health institutions. The subjects are from age 20 to 62 old including 16 men and 8 women diagnosed with a "simple" schizophrenia (no schizoaffective disorders) following the DSM-IV criterions (APA, 2000). The control group is constituted with 25 healthy subjects (no psychological, psychopathological, neurological or vascular past histories) matched with each experimental subject with age (5 years range), sex and sociocultural level (number of school years completed). The subjects first completed the Positive and Negative Symptom Scale (PANSS) (Kay, Fizbein & Opfer, 1987) and the Frontal Assessment Battery (FAB) (Dubois, Slachevsky, Litvan & Pillon, 2000) in order to control for the influence of symptomatology and executive functioning. The subjects were then asked to complete the 5PT test. They were presented the form and had to complete a short trial (5 squares) before they can carry out the actual task. They had one minute to fill the form. The number unique designs/UD and perseverations were computed.

The results of this preliminary study show that the 5PT test is able to highlight neuropsychological differences between schizophrenics and healthy subjects, regardless of their age, schooling level and symptoms. Besides, in schizophrenics, the number of unique designs showed interesting links with the "global executive functioning" (FAB total score) and inhibition components (*inhibition* and *interference* subtest scores). Further studies need to replicate these results with larger samples, focus on which specific abilities are involved in non-verbal fluency tasks, control specific variables as attentional abilities, updating and visuomotor skills; and look for additional indexes. Although this study represents a little first step in the schizophrenics non-verbal efficiency research field, we strongly believe that the experimental psychopathology could benefit from the investigations on non-verbal fluency.