
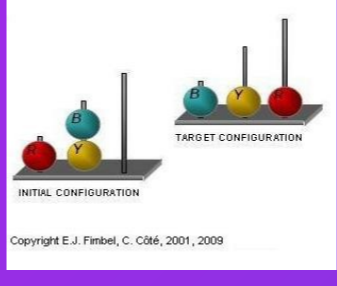

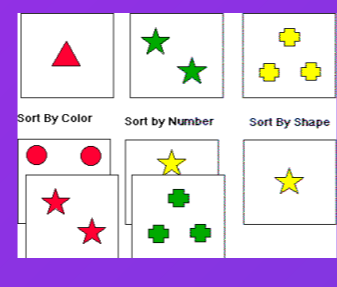
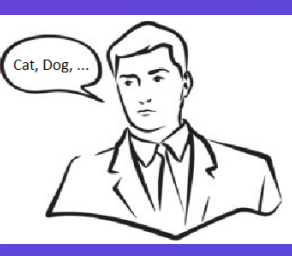


Vicenzutto, A.¹, Lefebvre, L.¹, & Pham, T.H.^{1,2}

¹ University of Mons, Belgium ; ² Centre de Recherche en Défense Sociale, Belgium

Introduction

The prevalence of people with an intellectual disability (ID) is high among the incarcerated and interned population (Vicenzutto, & al., 2017), ranging from 1.5% to 19.1% with an average of 6.2% (Fazel, & al, 2008). However, the study of the characteristics of this sub-population is paramount. Actually the literature considers the forensic population as a whole, and studies need to be more specific, in particular targeting specific subpopulations (Joyal, & al., 2014). Particular the neuropsychological aspects of forensic patients with an ID are limited. While we know that, among forensic population, several studies highlight difficulties to the "executive tasks" (Ogilvie, & al, 2011). The authors also highlight problems of executive functions in ID people (Danielsson, & al, 2010 ; Edgin, & al, 2010). Indeed, we wanted to identify the neuropsychological characteristics, and particularly the executive profile, of two groups of patients with Intellectual Disability (one with forensic involvement and one without).

Sample	Method	Instruments
<p>Our sample is composed of two groups :</p> <ul style="list-style-type: none"> Group "Forensic ID" is made up of 19 male forensic patients from the Forensic Psychiatric Hospital <i>Les Marronniers</i> (Tournai, Belgium). Group "ID patients" is made up of 20 male patients with intellectual disability from the Residential Institution for people with ID "<i>La Pommeraie</i>" (Hellignies-Sainte-Anne, Belgium). 	<p>The Wechsler Adult Intelligence Scale (2011) battery assesses intelligence (IQ) through four indices : Verbal Comprehension Index (VCI); Perceptual Reasoning Index (PRI); Working Memory Index (WMI); Processing Speed Index (PSI).</p> 	
<p>Procedure</p> <p>Each participant signed an informed consent sheet. All patient of the sample were tested to the WAIS-IV and the neuropsychological tests.</p>	<p>The Tower of London Test (ToL; Shallice, 1982) assesses executive functioning (planning). The examiner uses pegs and beads to present problem-solving tasks.</p> 	<p>The Stroop Test (Stroop, 1935) assess the inhibition function. The test is divided into three conditions: Denomination, Reading and Interference (read color names which are written in different colors).</p> 
<p>Data analysis</p> <p>In the absence of normality of distribution (Shapiro-Wilk), we performed nonparametric comparison group analyzes (U Mann-Whitney).</p>	<p>The Modified Card Sorting Test (MCST; Nelson, 1976) assess categorizing ability. The patient must sort two sets of 24 cards on three criteria (color, shape, number).</p> 	<p>Verbal Fluency assess spontaneous flexibility (Cardebat & al, 1990) : Phonological Fluency (give words beginning with a certain letter) and Semantic Fluency (quote words belonging to a given semantic category).</p> 

Result

Descriptive Data for the sample

Group comparisons for Age & (total IQ and four indices scores)

	Forensic ID		ID Patients		U	p
	M	SD	M	SD		
Age	39,32	9,93	40,29	14,02	184,000	,866
Total IQ	54,94	9,12	58,60	12,59	163,000	,461
VCI	60,56	6,96	69,60	13,15	93,000	,033
PRI	69,25	10,80	66,00	11,10	129,500	,336
WMI	59,76	16,06	66,85	15,18	130,000	,232
PSI	62,35	17,08	61,90	9,40	149,000	,537

Bonferroni Correction (indices) : p = .0125

Comparisons of groups

Group comparisons for the MCST

	Forensic ID		ID Patients		U	p
	M	SD	M	SD		
Number of categories	4,11	1,87	6,37	1,78	52,500	,001
Number of errors	11,55	9,62	0,40	0,63	13,500	,000
Number of perseverations	3,54	0,53	0,53	1,80	52,500	,002

Bonferroni Correction (number of errors and perseverations) : p = .025

Group comparisons for the Tower of London

The group comparison for the *Number of Movements*, *Latency Time* and *Total Time* at the three condition (Positive – Neutral and Negative Inciters) of the ToL reveal no significant difference between the two groups.

Group comparisons for the Stroop Test

The group comparison for the three conditions (Denomination – Reading and Interference) show no significant difference.

Group comparisons for the Verbal Fluency

Group comparisons show no difference in Phonological Fluency (letter *P*) or Semantic Fluency (category : *Animals*).

Discussion

- ✓ Our results indicate that the two groups do not differ at the total IQ. However, we can observe a "tendency" to VCI where forensic patients show a lower performance than the group of ID patients.
- ✓ In the neuropsychological tasks, the results show that the two groups do not differ from the *Stroop*, the *Tower of London* or the *Verbal fluency*.
- ✓ The results show that the two groups do not have the same performance at MCST. Indeed, the group of forensic patients seems to present more difficulty to execute this task (categorization). This translates into less performance (number of categories) and a significant increase in the number of errors and perseverations. These results are consistent with findings in the literature showing lower performance in forensic patients (with or without ID) on categorization tasks such as the Wisconsin Card Sorting Test (Veneziano, & al. 2004). It would be interesting to further evaluate the categorization / abstraction functions, in visual mode, in ID forensic patients to determine the impact on functioning and the links with the risk of acting out.

Clinical Reflections

- ✓ It is important to note that the administration of neuropsychological tests provides many additional information for the management of patients with intellectual disabilities (Masson, & al, 2010). In particular, it helps identify the patient's cognitive strengths and resources on which (re)integration programs can be based.
- ✓ However, it is considered that the administration of these neuropsychological tasks presents some difficulties. One of the main ones is the time of administration and analysis. Another difficulty is the lack of adaptation of the rules for the award of intellectual disabilities (Willner, & al, 2010).

Limits / Perspectives

- ✓ This research included a small size of sample. We are currently testing other patients for increasing the sample. The goal is to strive for further statistical analysis such as logistic regression analysis to develop predictive neuropsychological factors of acting out.
- ✓ This study did not consider psychiatric comorbidities, nor medications, which may present an impact on the neuropsychological tests performances.
- ✓ We also did not consider the type of offenses within the Forensic ID group.

Conclusion

- ✓ In conclusion, it appears that if the neuropsychological assessment of ID patients, in particular, forensic ID patients, is a complementary tool for understanding their characteristics and needs, there is a lack of studies in this area. In view of the clinical benefits, it is necessary that the research should continue in a better knowledge of the cognitive functioning of the ID persons.

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