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PERCEPTUAL INHIBITION IN CHILDREN: CONVERGENT AND CLINICAL VALIDITY OF A COMPUTERIZED CONJUNCTION VISUAL SEARCH TASK

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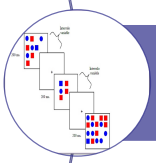
INTRODUCTION

Inhibition's central role in selective attention. It´s important to have a set of reliable and valid measures to evaluate each inhibitor type.



Perceptual Inhibition (PI) is responsible for suppressing the interference generated by distracting environmental stimuli.

OBJECTIVES

(1) to evaluate the convergent validity criteria of a computerized Conjunction Visual Search Task (Perceptual Inhibition - PI).

(2) to analyze the clinical validity of this task.

MATERIALS AND METHODS

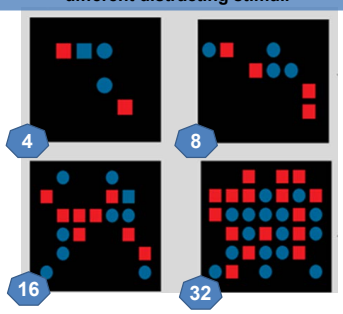
STUDY 1

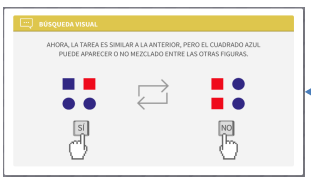
- 41 children (M_{Age}= 8.49; *SD*=1.47), middle socio-economic level, were intentionally selected from a school in Mar del Plata (Argentina), divided into 3 groups (see table Study 1)
- INSTRUMENTS: PI task of the **TAC (*Tareas de Autorregulación Cognitiva*)**, and Keys (CL) and Search of Symbols (BS) of the Wechsler Scale.

STUDY 2

- 49 children between 6 and 12 years old, assigned to two groups: (1) Clinical (ADHD combined subtype), consisting of children belonging to specialized centers in Barcelona, Spain (n= 19; M_{Age} = 9, 84; *SD*=1.83)
- (2) Control of an incidental sample without pathology (n= 30; M_{Age}=10.27; *SD*=0.83).
- Seeks to establish those variables with greater discriminant power.

Search and identification - by presence or absence - of a target that is mixed between different distracting stimuli





RESULTS

STUDY 1

Analysis of correlations between Precision and RT indices of the task, and the CL and BS sub-tests of the WISC-IV.

First grade (6-7)	• BS and CL ,and Precision with 32 distractors (*r*=.644; *p*=.05)
Third grade (8-9)	• CL and Precision with 4 distractors (*r*=-.496; *p*=.05) • CL and RT with 8 distractors (*r*=-.539; *p*=.03)
Fifth grade (10-11)	• BS and RT with 16 distractors (*r*=-.817; *p*=.04) • BS and RT with 32 distractors (*r*=-.913; *p*=.01) • CL and RT with 32 distractors (*r*=-.787; *p*=.05)

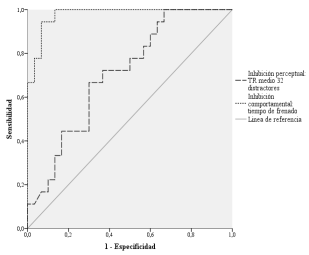
STUDY 2

Difference of Means and ROC curve of Perceptual Inhibition indices between the clinical and control groups

Process	Index	Group	N	Mean	SD	SEM	*t* (*sig.*)	*d* de Cohen
Perceptual Inhibition	Precision 32 distractors	Control	30	84.33	11.04	2.02	0.15 (878)	-
		Clinical	18	84.81	9.374	2.21		
	TR mean 32 distractors	Control	30	1571.13	344.48	62.89	**2.64 (.011)**	**.77**
		Clinical	18	1863.78	412.82	97.30		
	Dif. .Precision betwee 4 and 32 distractors	Control	30	9.83	10.30	1.88	0.26 (796)	-
		Clinical	18	9.08	8.77	2.07		
	Dif . TR between 4 and 32 distractors	Control	30	-460.53	265.35	48.45	1.46 (.151)	-
		Clinical	18	-594.94	371.12	87.47		
		Clínico	19	-.64	6.38	1.46		

Process	Index	AUC	Cut point	Sensitivity %	Specificity %
Perceptual Inhibition	TR mean 32 distractors	**.706**	**1615 ms**	**72.2**	**63.3**
Behavioral Inhibition	SSRT	**.978**	**537 ms**	94.4	93.3

Nota. AUC: Area under curve. ROC values between 0.5 and 0.7 indicate low accuracy, **between 0.7 and 0.9 moderate**, depending on purpose, and values greater than 0.9 indicate high accuracy.



DISCUSSION

✓The correlations between the CL and BS raw scores and the Perceptual Inhibition task indicate evidence in support of convergent validity, for school-aged children (ages 6 to 11).

✓Significantly lower performance of the clinical group, in perceptual inhibition task.

✓The task made it possible to discriminate 70.6% of correct cases (Detection of ADHD). Presents a moderate / high level of sensitivity and specificity to discriminate and detect cases of ADHD with a significant percentage of correct classified.

✓Empirical evidence in favor of the validity of contrasted groups: the task of TAC is useful to differentiate high and low levels of performance from PI in children.

✓A reliable and valid task makes it possible to independently evaluate perceptual inhibition, not only in the context of research into executive functioning, but also in a diagnostic process.

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