




Analysis of descriptions by Catalan-speaking individuals with aphasia and cognitive impairment

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Introduction and goals

Description and narrative tasks are used to evaluate and investigate the language production abilities of people with language impairments (e.g. Schönberger et al., 2014; Mueller et al., 2018; Cummings, 2019).

The aim of the present study is to investigate the abilities of Catalan-speaking individuals with chronic aphasia (IWA) and with cognitive impairment (IWCI) in comparison with those of healthy controls, and also to evaluate the scoring system of the Catalan version of the *Comprehensive Aphasia Test* (CAT-CAT; Swinburn et al. 2004, Salmons et al., 2021).

Methods

The oral description task of the CAT-CAT was administered to native speakers of Catalan:

- 109 non-brain-damaged control subjects (65 women, mean age of 50 years old).
- 20 subjects with different types of chronic aphasia (9 women, mean age of 63.3 years old).
- 4 subjects with cognitive impairment (1 woman, mean age of 78 years).

The scoring system differs from the original (Swinburn et al. 2004) in being a closed-rating system. It evaluates productivity, discourse efficiency, fluency and grammatical aspects such as grammatical complexity and grammaticality.

Figure 1. Image from the description task in the CAT-CAT



Selected references Salmons, I., Rofes, A. and Gavarró, A. (2021). *Prova integral d'afàsia. Llibre d'ítems*. Servei de Publicacions de la UAB. Available at <https://ddd.uab.cat/record/250143>

Acknowledgments Swinburn, K., Porter, G. and Howard, D. (2004). *The Comprehensive Aphasia Test*. Psychology Press.

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Results

The results of the control subjects were significantly higher than those of IWA ($U=1804.5$, $p>0.01$) and IWCI ($U=402.5$, $p>0.01$). The subjects with language impairments also presented greater intersubject variability than the controls (Table 1). Significant correlations between the total score and the variables of age (Pearson test = -0.21 , $p = 0.027$) and education level ($r = 0.25$, $p = 0.01$) were found only in the control group, in line with previous literature.

Table 1. Results by group

DISCOURSE	Maximum score	Controls mean (SD)	IWA mean (SD)	IWCI mean (SD)
Nouns	8	6.86 (0.94)	5.3 (2.15)	5 (1.83)
Actions	5	4.2 (0.83)	3.75 (1.25)	3.75 (0.5)
Content units	6	4.71 (1.02)	3.65 (1.66)	3.5 (1.29)
Total	19	15.77 (2.33)	12.7 (4.23)	12.25 (1.71)
GRAMMATICAL FEATURES				
Fluency	3	3 (0)	1.85 (0.94)	2.5 (0.58)
Grammaticality	3	2.99 (0.09)	2 (0.92)	2.75 (0.5)
Complexity	3	3 (0)	2.5 (0.69)	3 (0)
Total	9	8.99 (0.9)	6.35 (2.32)	8.25 (0.5)
Total	28	24.76 (2.35)	19.05 (6.29)	20.5 (1.91)

No significant differences were observed between the two experimental groups ($W = 37$, $p = 0.82$). Yet, the group of IWA showed greater intersubject variability than the group of IWCI (Table 1), and was consistently worse in fluency, grammaticality and grammatical complexity than the IWCI, which indicated a different pattern of performance between the two groups. Moreover, two IWA replied in Spanish even though the test is in Catalan, in consonance with the finding that bilingual speakers with aphasia often present deficits in cognitive control functions that translate into involuntary switching or cross-language intrusions (Mooijman et al. 2021).

Conclusion

Our findings show that the oral picture description of the CAT-CAT is sensitive to the language impairment of subjects with aphasia and cognitive impairment. Moreover, the rating system put forward allows us to qualitatively discriminate between these two types of impairment, since it includes variables to evaluate separately content and discourse efficiency on one hand, and grammatical features on the other hand.