Word Reading Profile in Alzheimer's Disease in French

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Introduction

Little is known about the specific reading profile of **French-speaking Alzheimer** patients and the type of errors they make as the disease progresses.

Studies conducted in English report difficulties in reading irregular words (words that have exceptional grapheme-to-phoneme correspondences) leading to regularization errors (reading *pint* to rhyme with *mint*) [1]. Given that French has also many irregular words, our study aims at investigating word reading abilities in Alzheimer's disease (AD) in French.

Methods

Population

	Healthy controls (HC)	Mild stage of AD (AD1)	Moderate stage of AD (AD2)	Kruskal-Wallis Test
	N= 23	N = 8	N = 9	
Sex (F/M)	17/6	6/2	5/4	
Age	79 (69-92)	76,5 (68-84)	75 (67-88)	$H(2) = 1{,}13$, $p = .57$
Education (years)	15 (8 -18)	12 (9-20)	12 (2-17)	$H(2) = 5{,}41$, $p = .07$
MMSE	29 (28-30)	23 (21-24)	17 (14-19)	$H(2) = 31{,}91$, $p < .001$

Cognitive assessment: global (MMSE), episodic memory (5 words test) and semantic memory (Mini-QCS)

Word reading aloud task

	Regular words	Irregular words
High frequency	**HFr Reg** N=31	**HFr Ir** N=32
Low frequency	**LFr Reg** N=32	**LFr Ir** N=32

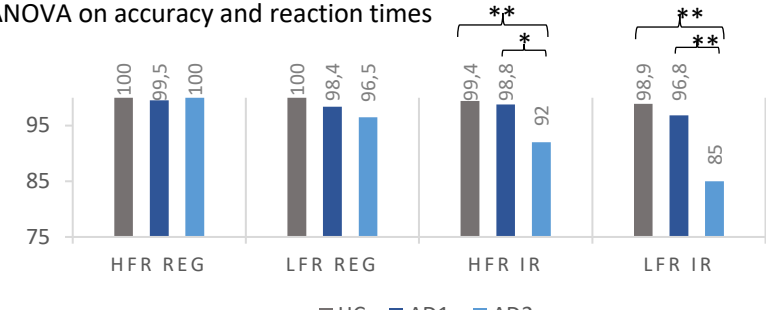
Words are matched for frequency, initial phoneme, length, age of acquisition, concreteness, imageability and orthographic neighborhood size

Results

We ran a repeated-measures ANOVA on accuracy and reaction times

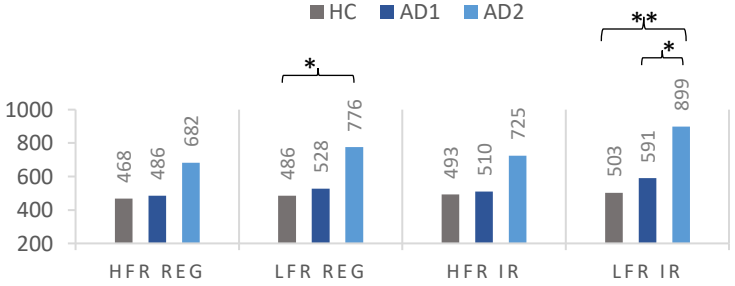
Accuracy (%)

Word type: $F=27{,}6$; $p<.001$
Group: $F=22{,}1$; $p<.001$
Interaction: $F=14{,}3$; $p<.001$



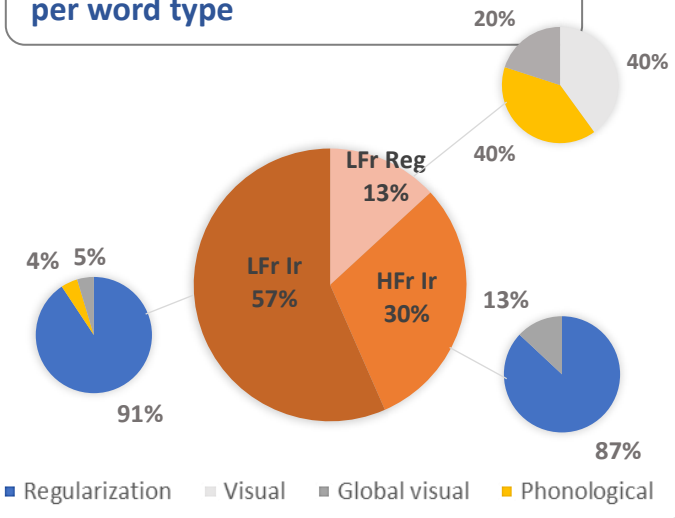
Reaction times (ms)

Word type: $F=18{,}5$; $p<.001$
Group: $F=10{,}3$; $p<.001$
Interaction: $F=4{,}9$; $p=.004$



*significance at .05
** significance at .001

AD2: percentage and type of errors per word type



Discussion

- **AD1** show preserved reading abilities as they perform similarly as HC in terms of accuracy and reaction times

- **AD2** show reading difficulties for irregular words (of HFr and LFr) in terms of accuracy, making mainly regularization errors
  → semantic deficit ?

Moreover, the slower reaction times for LFr words (regular and irregular) compared to HC might reflect lexical access difficulties
  → executive deficit ?

- Need to investigate the underlying processes of reading in AD

1. Graham, N.L. & Patterson, K. (2004). Reading aloud and spelling in Alzheimer's disease. In R.G. Morris & J.T. Becker (Eds.), Cognitive neuropsychology of Alzheimer's disease. Oxford: Oxford University Press