The impact of the salience of fluency in recognition memory in Alzheimer’s disease

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According to the dual-process models, recognition memory is supported by recollection and familiarity (Yonelinas, 2002). Familiarity is a complex function that depends on several processes. One of the most important mechanisms is the sense of familiarity driven by the fluency processing (Whittlesea, 1993). The fluency can be defined by the enhancement of processing speed and the ease of processing due to an earlier encounter with the stimulus. Our objective is to explore the effect on an increase of salience of fluency cues on the recognition memory performance of patients with Alzheimer disease (AD). Sixteen AD patients and sixteen healthy elderly controls (HC) performed two conditions of a memory task. In the study phase, 25 words were presented at a rate of one word every 1.5s. Participants were instructed to read the words aloud and to try and remember them. After a break of 5 minutes, participant performed a yes/no recognition task with 25 studied words and 25 new words. In the Non-Overlap condition, the 25 studied words were composed of a subset of letters of the alphabet and the 25 new words of the remaining letters. In the Overlap condition, the 50 words were based on the whole alphabet. The two recognition tasks were separated by a delay of 24h. Results showed that AD patients made significantly less hits and more false alarms than HC. Both groups recognized more targets and made fewer false alarms in the Non-Overlap condition than in the Overlap condition. Concerning the index of discrimination (d’), it was lower in the AD group than in the HC and also poorer in the Overlap condition than in the Non-Overlap condition. The current results showed that to increase salience of fluency at the level of letter by eliminating letter-overlap between old and new words increases the recognition performance to the same extent in both groups but the amplitude of AD memory deficit was not reduced (Bastin, Willems, Genon, & Salmon, 2013).

Keywords: Alzheimer’s disease, familiarity, fluency processing

Bastin, C., Willems, S., Genon, S., & Salmon, E. (2013). Enhancing the salience of fluency improves recognition memory performance in mild Alzheimer’s disease. *Journal of Alzheimer’s disease, 33*(4), 1033‑1039.

Whittlesea, B.W.A. (1993). Illusions of familiarity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(6), 1235‑1253.

Yonelinas, A.P. (2002). The nature of recollection and familiarity: A review of 30 years of research. *Journal of Memory and Language*, 46(3), 441‑517.