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Objective: Autobiographical memory (i.e., memory for personal information) has been found to be impaired in Alzheimer's disease (AD) (El Haj, Antoine, Nandrino, & Kapogiannis, 2015; El Haj, Postal, Le Gall, & Allain, 2011). However, recent research has demonstrated that odor may serve as a powerful cue for autobiographical retrieval in AD (El Haj, Gandolphe, Gallouj, Kapogiannis, & Antoine, 2017; Glachet, Gandolphe, Gallouj, Antoine, & El, 2018; Glachet & El Haj, 2019; Glachet, Moustafa, Gallouj, & El Haj, 2019). Building on this research, we investigated phenomenological experience as associated with recollection of odor-evoked autobiographical memory in AD. More specifically, we evaluated emotional characteristics (i.e., arousal and valence) and subjective characteristics (i.e., reminiscence, mental time travel, meaning, visual and auditory imagery) of odor-evoked autobiographical memory in AD

Method: We invited 24 participants with mild AD and 25 age-matched controls to retrieve autobiographical memories after odor exposure or without odor. After autobiographical retrieval, participants were asked to rate each memory on a five-point Likert scale regarding the subjective experience associated with the memories (i.e. reminiscence, mental time travel, meaning, visual and auditory imagery). They were also invited to complete the SAM scale, comprising an evaluation of the intensity and the hedonic valence of the memories.

Results: Results showed higher arousal, more positive memories after odor exposure, compared with the odor-free condition for all participants. Regarding the subjective experience, we found more reminiscence, mental time travel, meaning, visual and auditory imagery for odor-evoked autobiographical memories compared to the odor-free condition in AD participants. Regarding control participants, odor exposure solely improved reminiscence and mental time travel compared to the odor-free condition.

Conclusion: These findings have an important clinical implication since odor may be a useful cue to trigger significant recollection of odor-evoked autobiographical memories, as well as more positive events in AD.

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Jacoby–Whitehouse illusion from taxonomic and thematic associations

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Jacoby and Whitehouse (1989) have shown that, during a word recognition memory task, prior and brief word presentation (e.g. cat-CAT) enhanced participants' propensity to say "old". Increased endorsement of words has also been described when the prime is conceptually related to the test words, mainly for hits. This effect has been associated by some with an increased contribution of familiarity during recognition while others have shown increased recollection instead. Of note, the semantic relation between words could be very broad: taxonomic category, attributes or functions, context, part-whole relationships or synonyms.

The present study contrasts thematic (concepts performing complementary roles in the same scenario - e.g. plane-SKY) and taxonomic (concepts belonging to the same category - e.g. dog-CAT) conceptual primes in a Jacoby-Whitehouse paradigm in order to assess whether both types of prime lead to enhanced old responses in a recognition memory task. Thirty young adults (24 ± 4 yo; 23 female) performed a word recognition task in 3 different prime conditions (perceptual; taxonomic; thematic). For each block, 32 words were studied. In the subsequent yes-no recognition task, the 32 'old' words were presented among 32 'new' ones. Each target-word was preceded by a masked 33 ms word that was perceptually, thematically or taxonomically related or unrelated to the word. The results showed a significant interaction between the type of words and the priming context for the proportion of 'yes' responses and 'know' responses. More 'old' and "Know" responses following a related prime compared to an unrelated prime occurred for false alarms only. Such effect was observed across all three conditions, supporting the idea that strict control of the type of conceptual priming (as opposed to all-out priming) leads to an enhanced feeling of familiarity for unstudied words only in the same way as repetition priming.

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