

A meta-analysis of semantic memory in Mild cognitive impairment

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Abstract:

Accumulating evidence over the past decade suggests that semantic deficits may represent a core feature of amnesic Mild cognitive impairment (MCI). A meta-analysis was performed on articles obtained from the PubMed database with the aim of investigating if semantic deficits were consistently found in elderly individuals with MCI, who are at significant risk of developing Alzheimer's disease (AD). 22 studies met the inclusion criteria for the current meta-analysis. An effect size and a weight were calculated for each study. A random effect model was performed to assess the overall difference in semantic performances between MCI patients and healthy subjects. Results of the meta-analysis indicate that MCI participants perform significantly worse than healthy matched controls in terms of overall semantic performance (effect size = 1.024; 95% CI [0.803; 1.245]). Moreover, although MCI participants are more affected than controls across all semantic tasks, they are more impaired on naming tasks (proper-name retrieval) and on effortful semantic tasks (free recall of semantic knowledge) than on effortless semantic tasks (cued recall or multiple choice answers. $F(2,76) = 9.71$; $p < 0.001$). Semantic deficits are a key feature of amnesic MCI. Semantic tests may contribute to better identify those individuals who are more likely to develop AD and should be incorporated in routine clinical assessments. Semantic tests are also less sensitive to situational factors such as stress, fatigue and anxiety that may have a negative impact on the performance of elderly individuals during clinical assessments.

Keywords:

Semantic memory, naming, MCI, Alzheimer's disease, meta-analysis