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Autobiographical Memory in Mild Cognitive Impairment: A Systematic Review

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Abstract

Mild cognitive impairment is a syndrome defined as a decline in cognitive performance that is greater than expected for an individual's age and education level, but does not significantly interfere with daily life activities. Many studies on MCI and more severe cases of dementia have focused on the memory domain. Autobiographical memory is one specific memory system that has been extensively studied in Alzheimer's disease and its effect on the impairment of AM in moderate forms of decline, such as MCI, is still debatable. The primary goal of this systematic review is to examine the functioning of autobiographical memory in patients with MCI, taking into account both the semantic and episodic components. The results of impaired episodic AM in MCI patients are more consistent than those of semantic AM. Based on the findings of this systematic review, additional research should be conducted to identify and investigate the cognitive and emotional mechanisms that undermine AM performance, allowing for the development of specific interventions that target these mechanisms.

Keywords: Autobiographical memory • Episodic memory • Semantic memory • Mild cognitive impairment

Introduction

The term mild cognitive impairment refers to a syndrome defined as a decline in cognition that is more severe than would be expected for an individual of the same age and education. This impairment has no discernible impact on daily activities. The MCI construct has evolved since its initial proposal: it was originally used to describe a pattern of impairments involving the memory domain, but it later broadened to encompass many other domains. Petersen proposed dividing the population into multiple subtypes. This hypothesis divides MCI into two types: amnestic MCI single domain, in which there is only a memory impairment, and amnestic MCI multiple domains, in which there are impairments in memory and other cognitive domains. Non-amnestic MCI single domain, in which there is an impairment in one domain that is not memory. Autobiographical memory is one type of memory system that is important for social functioning because it provides people with a sense of a subjective timeline. Individuals can mentally travel back in time thanks to AM, gaining a sense of "self" that can exist in subjective time. AM goes beyond simply recalling past events; it creates a sense of extended self across time in order to reflect on and evaluate self-related events. As a result, AM is a type of memory that focuses on an individual's life experiences, and it consists of multiple types of long-term memory, including episodic and semantic components. The recall of specific episodes from one's past, such as an unexpected accident, is referred to as autobiographical episodic memory.

Literature Review

It has been demonstrated in healthy ageing that AM declines with age, with the episodic component being more affected than the semantic component. It discovered that episodic AM decline becomes visible after 60 years. While the impact of Alzheimer's disease on AM has been extensively studied in pathological ageing, it remains controversial in moderate forms of decline, such as MCI. Recent research has found episodic AM impairments in patients with MCI. These studies discovered that patients with aMCI performed worse in episodic memory but recalled more semantic details when recalling past events. Patients with aMCI typically have hippocampus dysfunction, which can result in an isolated impairment of episodic memory.

The purpose of this systematic review was to examine AM performance in patients with MCI, with a particular emphasis on the main features of AM alteration. In general, the large number of studies included in the first screening can confirm the topic's popularity. AM plays an important role in identity formation, and impairments in AM can have devastating consequences for patients and their families. These factors prompted us to concentrate on this specific memory component in order to better understand the level of impairment that patients with MCI experience. Furthermore, we wanted to know if the episodic or semantic components of AM are impaired in MCI patients. The presence of impairments in episodic autobiographical memory is highlighted in this systematic review. When evaluating the results, however, the results are more contentious.

Discussion

As evidenced by the results, the cognitive-behavioral approach to therapy was effective in this case. The proposed goals were met in a relatively short period of time, and the patient recovered successfully. Several considerations must be made, which arose in the case and influenced the therapy in some way. For example, in some cases, the family's socioeconomic status made it difficult to establish certain healthy eating patterns and limited the use of material reinforcement. The elevated absence of a family structure also proved to be a determining factor, necessitating individual intervention with each member of the family, as group therapy could not be used. Nonetheless, all of the family members were clearly concerned about the situation and offered their assistance in achieving the therapy objectives.

When compared to healthy controls, all of the studies included in this systematic review show an impairment in the episodic component of AM in patients with aMCI. This discovery may have varying effects on MCI patients. Indeed, studies have shown that people rely on their autobiographical memories to achieve a variety of social, practical, and psychological objectives. Indeed, AM serves critical functions in three areas: social, directive, and self. AM is used to connect with others in the social function. The directive function refers to the ability to use AM to solve problems and plan future behaviour, whereas the self function refers to the ability to use AM to develop, maintain, and express an enduring self-concept. These hypotheses are confirmed by our systematic review. Regardless of the test used, the episodic component is impaired in all

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of the studies included. Instead, only seven studies found that patients with MCI had poorer semantic performance when compared to the HC group. Furthermore, three studies found the opposite effect, i.e., more semantic details in patients' recollections compared to controls. This outcome could be explained by the fact that the latter assessed AM using the developed standardised scoring procedure. By segmenting a single transcribed autobiographical narrative into internal event-specific and external semantic details, researchers can derive both episodic and semantic information from the same test. Most authors, on the other hand, use separate tests to assess the various components of AM [1-6].

Conclusion

As a result, the differences in semantic memory scores could be attributed to the various assessment procedures. Another possible interpretation is that, in Levine's procedure, confabulations (inaccurate or false narratives produced to provide information about the world or the "self") could be scored as semantic, resulting in better semantic performance for patients with MCI. The temporal gradient of autobiographical memories is another important factor to consider. Indeed, previous research has shown that older memories retain more AM than more recent ones, and this effect is known as Ribot's law.In terms of episodic memory, seven studies for patients with aMCI confirmed Ribot's law. Three studies, however, found the opposite effect. AM's methodological evaluation could explain these findings.

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Conflict of Interest

There are no conflicts of interest by author.

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