Prospective memory key to performance of everyday life activities in multiple sclerosis

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Dr. Weber is a research scientist in the Center for Traumatic Brain Injury Research. Credit: Kessler Foundation

Kessler Foundation researchers reported results of a study of deficits in prospective memory in individuals with multiple sclerosis (MS) that may contribute to difficulties with everyday life activities. The article, "Time-based prospective memory is associated with functional performance in

persons with MS," was epublished on September 23, 2019 by the *Journal of the International Neuropsychological Society*.

The authors are Erica Weber, Ph.D., Nancy Chiaravalloti, Ph.D., and John DeLuca, Ph.D., of Kessler Foundation, and Yael Goverover, Ph.D., of New York University, who is a visiting scientist at Kessler Foundation. Drs. Weber and Goverover are former recipients of Switzer Fellowships awarded to postdoctoral fellows by the National Institute on Disability Independent Living and Rehabilitation.

While interest in memory difficulties in the MS population has grown, most studies focus on retrospective memory, or the recall of previously learned information. Few studies have addressed difficulties with prospective memory, which are associated in general with poor everyday like functioning, and in MS specifically, with greater likelihood of unemployment. Prospective memory entails remembering to perform an intention at a future point in time, or "remembering to remember".

In this study, participants were presented with two types of prospective memory tasks—event-based tasks, which have relatively low strategic cognitive demands, and time-based tasks, which require more higher-order resources for successful completion. One example of an event-based task would be remembering to mail a letter when passing a post office; an example of a time-based task would be remembering to call the doctor on Wednesday morning. This is only the second study to directly compare time- and event-based prospective memory in MS.

Researchers compared 30 adults with MS (aged 28-65) with 30 healthy controls. All participants underwent neuropsychological assessment, prospective memory assessment (Memory for Intentions Screening Test, MIST), and an everyday functioning assessment developed at Kessler Foundation (KF-Actual Reality TM), which presents individuals with three online purchasing tasks.

Results showed that compared to the control group, the MS group had more difficulty with tests of prospective memory, and their performance was poorer on time-based tasks than on event-based tasks. There was correlation between performance on the KF-Actual Reality and the time-based, but not the event-based tasks on the MIST. Time-based deficits were associated with deficits in executive function, as well as lower motor scores, indicating a possible link between prospective memory and MS disease severity, according to Dr. Weber, research scientist in the Center for Traumatic Brain Injury Research.

"Poor prospective memory hinders the ability to perform a broad range of everyday life activities, which undermines individuals' independence," noted Dr. Weber. "Our findings indicate that developing strategies that improve time-based functioning may help individuals with MS improve their prospective memory and support their efforts to maintain their independence."

More information: Erica Weber et al, Time-Based Prospective Memory Is Associated with Functional Performance in Persons with MS, *Journal of the International Neuropsychological Society* (2019). DOI: 10.1017/S135561771900095X

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