Objective: Prospective memory (PM) is the ability to remember to produce an action at a specific moment in the future signaled by the occurrence of a specific event (EB condition), a time or a time interval (TB condition). Detection of the appropriate moment corresponds to the prospective component (PC), while production of the appropriate action corresponds to the retrospective (RC) component. Although PM difficulties have been reported in healthy aging and in association with Multiple Sclerosis (MS), PM has not been examined in elderly people with MS (PwMS), which is particularly relevant since their life expectancy has improved significantly in recent years due to available treatments, and PM is essential to daily functioning. The main objective of this study was to investigate whether the decline in PM performance with advancing age is influenced by the presence of multiple sclerosis (MS). This study also aimed to clarify the type of PM impairment (PC vs RC in TB and EB conditions) in MS as a function of age.
Participants and Methods: A total of 80 participants were recruited and separated into four groups: elderly PwMS (n = 20), young PwMS (n = 20), elderly healthy controls (HC) (n = 20) and young HC (n = 20). PM and its components were measured using the TEMP, an experimental ecological tool developed by our laboratory that has been validated in previous studies. In addition, all participants underwent a series of neuropsychological tests specific to MS (MACIFMS) and aging (Boston Naming Test, Clock Drawing Test, Towers of London, Trail making Test, Stroop, MoCA).
Results: On the TEMP total score, a two-way ANOVA showed a main effect of age $(F[1,75]=47.4, p<0.001, \eta 2 = .40)$, a main effect of the presence of MS $(F[1,75]=19.51, p<0.001, \eta 2 = .21)$ as well as a significant Age X Disease interaction $(F[2,74] =5.40, p=0.023, \eta 2 = .07)$. Direct comparison between EB and TB conditions revealed that for the PC, only elderly PwMS had more difficulty in the TB than in the EB condition $(Z = -2.51, p = 0.012)$, whereas RC score was significantly lower in the TB than in the EB condition in all groups except in younger controls (younger PwMS : $Z = -2.56, p = 0.01$; elderly HC : $Z = -3.31, p < 0.001$; elderly PwMS :$Z = -3.04, p = 0.002$).
Conclusions: The TEMP revealed a marked impairment in PM in elderly PwMS compared to elderly HC and young PwMS. This impairment was particularly evident on the PC component in the TB condition. RC difficulties noted in the TB

condition in all but younger controls reflect the arbitrary nature of the cue-action link that is particularly sensitive to episodic memory difficulties often observed in aging and MS.

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37 Adherence to treatment in Multiple Sclerosis. The importance of personality, executive functions, and social support.

Carlos Alberto Martínez Canyazo[1], Lucia Crivelli[2], Ismael Calandri[2], Micaela Arruabarrena[1], María Agustina Piedrabuena[1], María Celica Ysrraelit[1], Ricardo Allegri[1], Jorge Correale[1]
[1]Fleni, Capital federal, Buenos aires, Argentina.
[2]Fleni, Capital federal, Buenos Aires, Argentina

Objective: To test whether adherence to treatment in patients with MS is influenced by cognitive variables (executive functions), personality, and social support.
Participants and Methods: This is a pilot observational, descriptive, cross-sectional study. 60 patients with Relapsing remitting MS (73.33% female; age: 41.41 ±14.00) undergoing medical treatment (28 dymethilfumarate, 7 ocrelizumab/ rituximab, 6 fingolimod, 5 interferon, 5 natalizumab, 4 cladribine, 3 teriflunomide, 1 alemtuzumab, 1 glatiramer acetate) underwent a comprehensive multi-component evaluation including :
cognition, social support (using the self-reported record of social support scale), personality (using the NEO-FFI questionnaire) and evaluation of treatment adherence using the Morisky Green Levine Medication Adherence Scale
Participants were divided into two groups according to their adherence to medical treatment, low vs. high adherence was defined using a cutoff score of 4. Differences between groups were evaluated using Student's t-test

with a significance level of p<0.05, the effect size was calculated with Cohen's d test.
Results: Groups did not differ significantly in age, sex, type of treatment, Montreal Cognitive Assesments (MoCA) or neuropsychiatric scales of depression and anxiety. Regardless of treatment type, 63.33% of the patients had high treatment adherence. Significant differences between groups were found in the Global Index of Social Support (p=0.016, Cohen's d= 0.73) and the responsibility factor of the NEO-FFI (p=0.048, Cohen's d= 0.20). Conversely, no significant differences were found in executive functions (p=0.8), Openness (p=0.062), Extraversion (p=0.5), Neuroticism (p=0.4) and Agreeableness (p=0.8).
Conclusions: Social support and the responsibility factor of personality are significantly different between MS patients with high and low adherence to medical treatment. The study of social support and personality may be a key component in improving adherence strategies.

Categories: Multiple Sclerosis/ALS/Demyelinating Disorders
Keyword 1: multiple sclerosis
Keyword 2: treatment outcome
Keyword 3: cognitive functioning
Correspondence: Lucía Crivelli, Fleni, martinezcanyazo@gmail.com

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38 Cognitive and Affective Theory of Mind in Young and Elderly Patients with Multiple Sclerosis

<u>Maxime Montembeault</u>[1], Romane Farley[2], Julie Ouellet[2], Estefania Brando[2], Alexandra Tremblay[2], Kim Charest[2], Élaine Roger[3], Peter Scherzer[2], Pierre Duquette[3], Isabelle Rouleau[2,3]
[1]Douglas Research Center, McGill University, Montréal, QC, Canada. [2]Psychology department, Université du Québec à Montréal (UQAM),, Montréal, QC, Canada. [3]Centre de recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM), Montréal, QC, Canada

Objective: Theory of mind (ToM) deficits have been reported in patients with multiple sclerosis (pwMS). However, most studies have used pictures or written scenarios as stimuli without distinguishing between cognitive and affective ToM, and no studies have investigated older pwMS. The aims of this study were to determine the impact of MS and age on cognitive and affective ToM using a more ecological video-based task. We also aimed to investigate the relationships between ToM, cognition and emotion reading to understand the nature of ToM deficits in pwMS.
Participants and Methods: We recruited 13 young healthy controls (HC), 14 young pwMS, 14 elderly HC and 15 elderly pwMS. ToM was measured using an adaptation of the Conversations and Insinuations task (Ouellet et al. 2010). In this task, participants watch four 2-minutes videos of social interactions, which are interrupted by multiple choice questions about either the emotional state (affective ToM; 14 questions) or the intention (cognitive ToM; 14 questions) of the characters. They also underwent a short neuropsychological battery including cognitive tasks (Montreal Cognitive Assessment (MoCA), DKEFS Color-Word Interference Test) and an experimental multimodal emotion recognition task.
Results: We found significant effects of group (pwMS < HC), age (older < younger) and condition (cognitive ToM < affective ToM) on the ToM task. Although no interaction effect was found, the elderly pwMS group showed the largest discrepancy between their cognitive and affective ToM, the cognitive subtask being significantly more affected. ToM significantly correlated with general cognition (MoCA) in all participants, while cognitive inhibition (DKEFS Color-Word Interference Test) correlated with ToM only in elderly pwMS. No significant correlation was observed between ToM and emotion reading.
Conclusions: This study highlights both cognitive and affective ToM deficits in pwMS, and particularly in cognitive ToM in elderly pwMS. These impairments could be underlied by cognitive and executive difficulties, but not by core social cognitive impairments, as observed in the correlation analyses. Future studies should investigate the relationships between ToM impairments and impairments in real-life empathy and social behavior in pwMS.

Categories: Multiple Sclerosis/ALS/Demyelinating Disorders
Keyword 1: multiple sclerosis
Keyword 2: theory of mind
Keyword 3: aging (normal)