

2003). PM performance has also been associated with retrospective memory and working memory (Smith, 2003; McDaniel & Einstein, 2000). We investigated the association between PM performance and cognitive domains (executive functions, episodic memory, working memory) in adults at 40 years.

Participants and Methods: The participants ($n = 470$, age 40) were part of a longitudinal study including a cohort with a history of a birth risk (eg. asphyxia, low birth weight, hyperbilirubinemia) prospectively followed since birth and controls without birth risks. PM performance was assessed using the new Finnish Proper Prospective Memory Test (PROPS) offering a score for laboratory tasks and naturalistic tasks separately, for event-based PM (EBPM) and time-based PM (TBPM) performance, and a total score. Composite scores of three cognitive domains - executive functions, episodic memory, working memory - were formed by converting raw scores of nine cognitive test (e.g. the Wechsler subtests, the Stroop test, the Trail Making Test) to z scores, summed up and averaged. We calculated Spearman's correlation coefficient between the five PROPS scores and the composite scores of the cognitive domains.

Results: The episodic memory domain score correlated significantly with the PROPS laboratory tasks ($r_s = .23$, $p < .01$), naturalistic tasks, ($r_s = .13$, $p < .01$), the total score ($r_s = .23$, $p < .01$), EBPM ($r_s = .25$, $p < .01$), and TBPM ($r_s = .15$, $p < .01$). The executive functions domain score correlated with the PROPS laboratory tasks ($r_s = .17$, $p < .01$), the total score ($r_s = .16$, $p < .01$) and EBPM ($r_s = .20$, $p < .01$). The associations between the working memory domain and the PROPS test varied, in the laboratory setting ($r_s = .14$, $p < .01$), in the total score ($r_s = .13$, $p < .01$) and in EBPM ($r_s = .21$, $p < .01$). Furthermore, the composite score of the combined episodic memory and executive functions domains correlated significantly with the PROPS test in the laboratory setting ($r_s = .25$, $p < .01$), in the total score ($r_s = .25$, $p < .01$) and in EBPM ($r_s = .28$, $p < .01$).

Conclusions: The combination of the episodic memory domain and the executive functions domain was most associated with PM performance measured with the new Finnish Prospective Memory test (PROPS). Only the episodic memory domain was linked with the PROPS tasks in the naturalistic setting. Although the episodic memory domain was

more associated with PM performance, the results support the multidomain nature of PM functions.

Categories: Memory Functions/Amnesia

Keyword 1: memory: prospective

Keyword 2: cognitive functioning

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5 Longer Prospective Memory Delays Independently Predict Severity of Functional Decline in TBI

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Objective: Prospective memory (PM) tasks are common in everyday life and have been implicated in optimal daily functioning. However, less is known about the parameters of PM tasks that most influence functional decline, as well as the domains of everyday functioning most sensitive to PM impairment. The present study sought to examine these questions in individuals with traumatic brain injury (TBI).

Participants and Methods: Participants included 30 adults with chronic moderate-to-severe TBI who were at least one year removed from their injury (median [IQR] = 8.1 years [10.8]). Participants completed the Memory for Intentions Test (MIST), which is a 30-minute task that assesses time- and event-based PM with varying cue-intention delay length (2 versus 15 min) in the context of an ongoing task. Total scores were generated for each delay length and cue type. Additionally, participants completed a comprehensive neuropsychological battery, including assessments of processing speed, executive functions, attention, working memory, verbal fluency, and episodic learning and memory. Participants also completed questionnaires of self-reported cognitive and everyday functioning, including the Functional Behavior Profile (FBP), Prospective and Retrospective Memory Questionnaire (PRMQ) and a modified Lawton & Brody Instrumental Activities of Daily Living (IADL) Scale, which separately assessed 11 domains of everyday functioning.

Results: Pearson's r correlations revealed that total number of domains showing decline on the modified Lawton & Brody IADL scale was strongly correlated with MIST 15-min delay (MIST-15; $r=-0.503$, $p=0.005$), such that worse PM performance on long delay items was associated with more domains of IADL decline; this relationship was also reflected in the MIST Total Score ($r=-0.389$; $p=0.033$). No other MIST index was associated with IADL decline ($ps>0.10$). MIST-15 did not significantly correlate with any other measure of self-reported functioning (PRMQ, FBP; all $ps>0.10$), but was associated with specific declines in buying groceries ($p=0.009$), performing home repairs ($p=0.021$), shopping ($p=0.033$), and doing laundry ($p=0.035$). Relationships at a trend level included declines in housekeeping ($p=0.05$), managing finances ($p=0.097$), cooking ($p=0.092$), and taking medication ($p=0.066$). To determine specificity of the relationship between MIST-15 and everyday functioning, a linear regression was conducted using covariates that were significantly correlated with total number of domains of IADL decline (i.e., Selective Reminding Test total learning trials, CVLT-II Long Delay Free Recall, Symbol Digit Modalities Test total). This regression was statistically significant [$F(4,24)=4.263$; $p=0.10$; $R^2=0.415$], and MIST-15 remained an independent predictor ($p=0.047$; R^2 change=0.107).

Conclusions: Results suggest that the ability to remember to carry out intended actions after longer delay periods may be uniquely related to severity of declines in everyday functioning. Longer PM delays place higher demands on both memory and executive processes, as the encoded intention must survive a longer decay wherein monitoring for the appropriate cue is extended, and likely better mimic PM tasks in daily life (e.g., remembering to pick up milk after the workday). In light of these findings, clinicians may seek to include brief trials of long delay PM tasks as part of a comprehensive battery to screen for functional decline.

Categories: Memory Functions/Amnesia

Keyword 1: memory: prospective

Keyword 2: everyday functioning

Keyword 3: traumatic brain injury

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6 Trauma Exposure as a Predictor for Score Profiles on Structured and Unstructured Tasks of Verbal Memory in a Community Sample

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Objective: Evidence suggests that the most consistent cognitive impairment found in individuals experiencing posttraumatic stress disorder symptomology is verbal memory impairment (Johnsen & Asbjornsen, 2008). More specifically, research has shown that patients with PTSD perform poorer on verbal memory tasks relating to logical (story) memory than on word memory tasks, such as CVLT-III (Barrera-Valencia et al., 2017). While recent literature accounts for memory impairments related to PTSD, less is known about this relationship for individuals with mere trauma exposure compared to individuals without trauma exposure. The present research aims to determine if there is a significant impact on WMS-LM when compared to CVLT-III for individuals in a community sample that have been exposed to a traumatic event in their lifetime.

Participants and Methods: One hundred nineteen patients presented to a community-based practice for neuropsychological evaluation. Patients were screened for trauma exposure during a clinical interview. Immediate and long delay trials of Wechsler Memory Scale IV Logical Memory (WMS-LM) were used to examine structured learning and memory and the California Verbal Learning Test (CVLT-II) immediate and long delay recalls were used to examine unstructured learning and memory. Out of the 119 patients, 36 patients reported trauma exposure. Twenty-five were diagnosed as "normal," 62 were diagnosed with mild cognitive impairment, and 32 were diagnosed with dementia. A one-way MANOVA was conducted to examine the relationship across the multiple dependent variables.

Results: There was a statistically significant difference in immediate recall in memory based on exposure to trauma, $F(2, 116) = 3.28$, $p < .05$; Wilk's $\Lambda = 0.947$, partial $\eta^2 = .53$, such that individuals with trauma exposure performed