



Cognitive Impairment as a Risk Factor for Suicidal Ideation in Multiple Sclerosis

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Abstract

Objectives: To examine the relationship between suicidal ideation and cognitive impairment in MS.

Methods: Retrospective chart review was conducted for patients who had undergone neuropsychological evaluation and completed either the Beck Depression Inventory – II (BDI) or Patient Health Questionnaire – 9 (PHQ-9). Responses from the ninth item of each scale, concerning suicidal ideation, were used to create dichotomous variables, where a non-zero response on either was considered an endorsement of suicidal thoughts. Results of four cognitive tests—the Symbol Digit Modalities Test (SDMT), Paced Auditory Serial Addition Test (PASAT), California Verbal Learning Test - II (CVLT), and Controlled Oral Word Association Test (COWAT)—were rated dichotomously for impairment based on a cutoff score 1.5 standard deviations below mean demographic-adjusted performance. A series of Fisher’s exact tests was used to examine the relationship between cognitive impairment and suicidality.

Results: Impairments on the 3-second and 2-second PASAT were significantly associated with higher levels of suicidal ideation. Performance on the other three cognitive tests did not relate significantly to endorsement of suicidal thoughts.

Conclusions: Certain types of cognitive impairment may be related to suicidal ideation in persons with MS. Caregivers should note the increased degree of suicidality in cognitively impaired individuals, and further research into this phenomenon is warranted.

Background

Multiple sclerosis is characterized by a variety of neuropsychiatric issues. The relationship between many of these presentations is not well understood and remains the subject of much current research. The present study examines the specific interplay between suicidal ideation and cognitive deficits, both of which are found at a significantly higher rate in persons with MS than in the general population, to determine if cognitive deficits are related to a higher proportion of suicidal thoughts.

Methods and Results

Neuropsychological tests were used to detect impairment in four cognitive domains: visual attention and processing speed (SDMT), auditory attention and processing speed (PASAT), memory (CVLT), and phonemic and semantic verbal fluency (COWAT). Significance for each was determined using Fisher’s exact test.

Memory

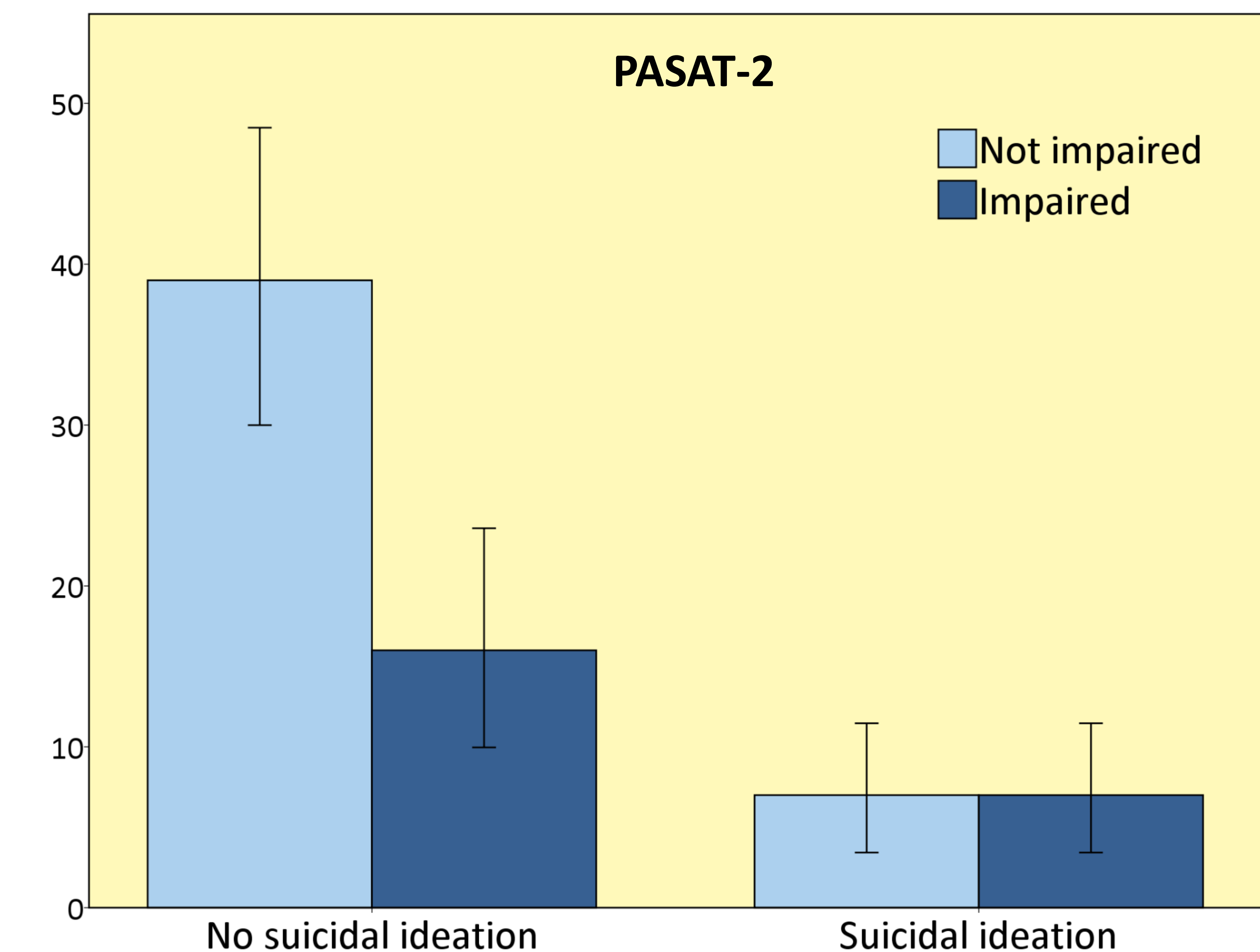
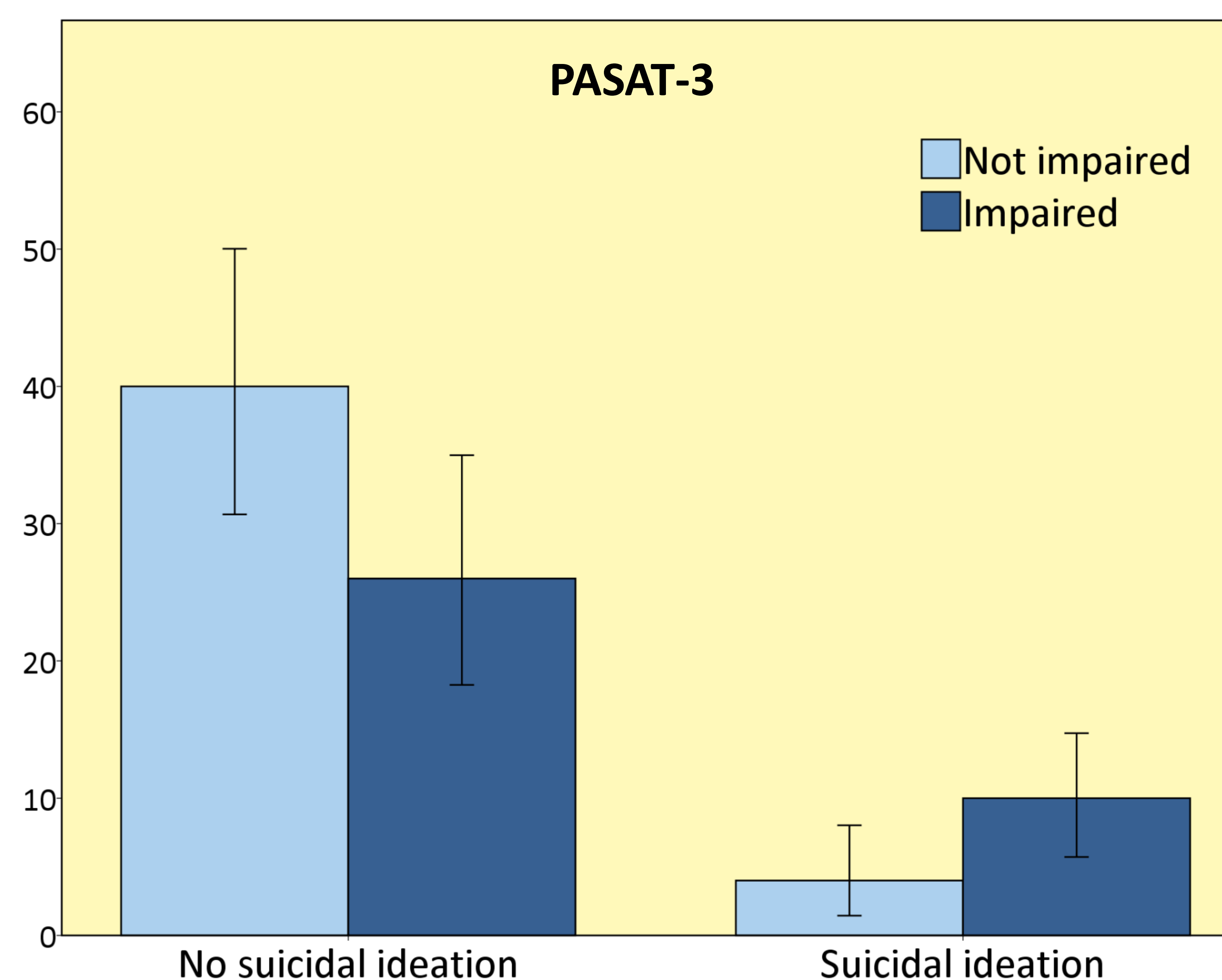
CVLT performance was not significantly associated with increased risk of suicidal thoughts ($p = .527$).

Verbal Fluency

Phonemic ($p = .355$) and semantic verbal fluency ($p = .387$) were not significantly associated with higher rates of suicidal ideation.

Attention and Processing Speed

SDMT performance was not significantly associated with suicidal ideation ($p = .206$).



- PASAT-3 was significantly associated with suicidal ideation ($p = .029$). Patients were more likely to endorse suicidal ideation by a likelihood ratio of 4.848.
- PASAT-2 was significantly associated with suicidal ideation ($p = .046$). Patients were more likely to endorse suicidal ideation by a likelihood ratio of 4.005.

Conclusions

- Clinically significant impairments in auditory attention and processing speed were associated with higher rates of suicidal ideation, while impaired memory, verbal fluency, and visual processing speed were not.
- Processing speed and attention, the core affected cognitive domains in MS, may indicate worse overall disease status, which may account for increased rates of suicidal thoughts.
- Cognitive impairment, particularly in core MS-related domains, should be monitored, as it may indicate greater risk of suicidal ideation. Further study of the relationship between different types of cognitive impairment and suicidality is needed.