



Subjective and Objective Impairment Metrics as Unique Correlates of Employment Status in Multiple Sclerosis



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Abstract

Objectives: Determine peripheral measures associated with employment status in multiple sclerosis (MS).

Methods: Retrospective chart review was performed for patients who had undergone neuropsychological testing ($N = 61$) at a medical center's outpatient MS clinic. Partial Spearman rank-order correlations, controlled for the effects of age, race, and gender, assessed the relationships between employment status and objective and subjective neuropsychological tests and inventories.

Results: Employment status was significantly associated with a subjective inventory of neuropsychological impairment and objective neurocognitive tests of visual memory, attention and processing speed, and verbal fluency.

Conclusions: Domains of cognitive functioning, rated both subjectively and objectively, are strongly related to MS patients' employment status.

Background

Disability in multiple sclerosis (MS) is multifaceted, with physical, cognitive, and psychosocial elements all playing roles in overall disease burden. Unemployment and underemployment are notably high in persons with MS, with as many as two thirds of MS patients unable to maintain employment.¹ Among the factors implicated in high rates of unemployment are physical disability and fatigue,² cognitive symptoms including memory loss,³ neurological disability, and age.⁴ Given the rates of unemployment associated with MS, examination of the potential relationship between employment and measures of impairment across multiple domains could provide valuable insight into the factors underlying unemployment among individuals with MS, and how to best provide efficacious intervention in maintaining employment among this population.

Methods

- 61 patients with MS completed a neuropsychological battery and completed self-report measures.
- Participants self-reported employment status during their clinical interview as unemployed, employed part-time, or employed full-time.

	<i>M</i>	<i>SD</i>	Range
Age (years)	45.96	12.29	18 – 77
Duration of illness (years)	6.61	6.14	0 – 21

- Partial Spearman rank-order correlations were used to examine the association between employment status, neurocognitive tests, and self-report mood and fatigue measures.
- Data collected: Brief Visuospatial Memory Test (BVM-T-R); Stroop Color and Word Test; Symbol Digit Modalities Test (SDMT); California Verbal Learning Test (CVLT-II); Controlled Oral Word Association Test (FAS, Animals); Multiple Sclerosis Neuropsychological Screening Questionnaire (MSNQ); Patient Health Questionnaire (PHQ-9); Beck Depression Inventory (BDI-II); Fatigue Severity Scale (FSS); Fatigue Scale for Motor and Cognitive Functions (FSMC); Hospital Anxiety and Depression Scale (HADS)

Conclusions

- Cognitive functioning is strongly and significantly correlated with employment status in MS patients.
- Better performance on neurocognitive tests is associated with higher levels of employment.
- Greater self-reported neuropsychological complaints were associated with lower levels of employment.
- Employment status did not significantly relate to self-reported depression, anxiety, motor fatigue, or cognitive fatigue.

Results

	<i>M (SD)</i>	Spearman's ρ	<i>p</i>
BVMT-R	36.19 (12.09)	.299*	.017
Stroop	88.36 (25.53)	.258	.053
SDMT (z)	-1.26 (1.48)	.387**	.003
CVLT-II	43.49 (12.85)	.183	.152
FAS (z)	-1.15 (1.05)	.274*	.030
Animals (z)	-0.77 (1.20)	.347**	.009
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MSNQ	30.39 (13.27)	-.414**	.006
PHQ-9	10.20 (6.65)	-.067	.659
BDI-II	17.58 (10.99)	-.133	.300
FSS	47.07 (13.45)	-.140	.359
FSMC	74.93 (18.81)	-.268	.119
HADS-A	8.57 (4.34)	-.101	.499
HADS-D	7.54 (4.69)	-.132	.376

* $p < .05$, ** $p < .01$

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