Cognitive Impairment in People with Multiple Sclerosis: Factors that Drive Perception of Impairment Differ for Patients and Clinicians

Jackson, D., Nicholson, R., Bergmann, C. S., Wilken, J., Kaczmarek, O., Bumstead, B., Buhse, M., Zarif, M., & Gudesblatt, M.

INTRODUCTION

Multiple sclerosis (MS) is a relapsing and progressive neurological condition that impacts ability across a wide range of neurological functions. MS often causes cognitive impairment (CI), fatigue, and depression[2]. These disease related factors can adversely impact daily functioning and Quality of Life (QoL)[1]. Early detection of CI in people with MS (PwMS) is important as targeted intervention might improve emotional functioning and quality of life. However, little is known regarding the accuracy in assessing the presence of CI in PwMS across multiple cognitive domains. Neurologists self-reported accuracy in assessing the presence of CI in PwMS is reported to be inaccurate/insufficient[6]. The accuracy (self-awareness, self-recognition) of PwMS self-reported CI might be suboptimal as well, and literature has reported mixed results[4,5]. Some research has suggested that there are external factors that affect perceived functioning. For instance, depression and fatigue may contribute to the perception of cognitive deficits[3]. Importantly, studies have not explored how perceptions made by PwMS regarding their cognitive functioning compare to perceptions made by treating clinicians who arrange such objective testing.

OBJECTIVE

To investigate what factors influence self-reported perceived cognitive deficits among pepopel with Multiple Sclerosis (PwMS) and their treating clinicians (TC) in order to explore what factors drive these perceptions and if they differ between PwMS and TC. Monitoring of CI in PwMS is still uncommon in routine care and barriers to implement routine screening might include both PwMS and TC awareness, recognition, as well as comprehensive care plans to routinely include such testing.

METHODS

PwMS (n = 202) were administered a standardized validated computerized multi-domain cognitive screening battery and patient reported outcomes (PROs) for fatigue (MFIS), depression (BDI-II) and a Likert scale for QoL. Physical disability was assessed by EDSS. Perceived cognitive deficits among treating clinicians and PwMS were self-reported along a Likert scale. Hierarchical regression analyses were performed in SPSS.

RESULTS

Analyses revealed that *both* fatigue ($p < .001$) and objective cognitive domain scores ($p < .01$) significantly predicted *patient perceived cognitive deficits*, but depression ($p = .257$) did not significantly predict PwMS self-perceived cognitive deficits. *Clinician perceived cognitive deficits* were significantly predicted by *multiple factors* including: cognitive scores ($p < .001$), depression ($p < .001$), physical disability ($p < .01$), age ($p < .05$), and self-reported quality of life ($p < .05$). Notably, patient fatigue did not significantly predict clinician perceived PwMS cognitive deficits ($p = .487$). Results are presented in Table 1 and Table 2. A lack of consistent agreement on the presence of CI was also noted.

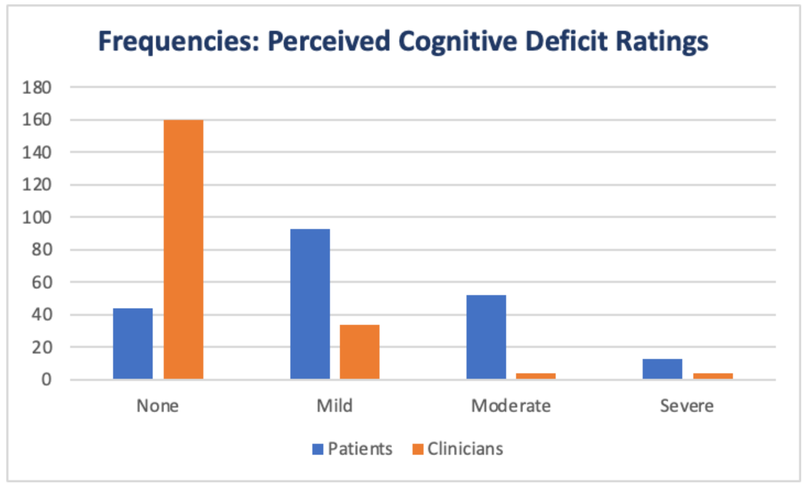

Table 1. Hierarchical Regression: Predictors of Patient Perceived Cognitive Deficits

Variable	*B*	95% CI for *B*		*SE B*	β
		LL	UL		
Step 1					
Constant	2.253***	1.586	2.920	.338	
Sex	-.158	-.417	.101	.132	-.085
Age	.004	-.006	.014	.005	.053
Step 2					
Constant	3.533***	2.646	4.420	.45	
Sex	-.167	-.417	.082	.127	-.09
Age	.006	-.004	.016	.005	.076
GCS	-.014***	-.021	-.007	.003	-.281***
Step 3					
Constant	2.316***	1.416	3.217	.456	
Sex	-.214	-.441	.014	.115	-.115
Age	.006	-.004	.016	.005	.083
GCS	-.009**	-.016	-.002	.004	-.185**
EDSS	-.044	-.106	.018	.031	-.105
MFIS	.014***	.006	.021	.004	.317***
BDI	.006	-.005	.017	.005	.09
MSIS	.004	-.002	.009	.003	.133

*p < .05; **p < .01; ***p < .001

CONCLUSIONS

These findings provide further insight into the factors that impact a PwMS self-reported degree of CI and the variance from what factors drive a treating clinician's perception of CI in PwMS. Indeed, factors that drive perception of CI in patients differ from their clinicians. CI in PwMS impacts real world ability, and identifying the presence of CI or change in CI in PwMS should not be left to patient or clinician perception alone. Future studies should explore whether patients or clinicians accurately perceive the patient's CI along a continuum.

Table 2. Hierarchical Regression: Predictors of Clinician Perceived Cognitive Deficits

Variable	*B*	95% CI for *B*		*SE B*	β
		LL	UL		
Step 1					
Constant	.760**	.296	1.224	.235	
Sex	-.023	-.203	.157	.091	-.017
Age	.012**	-.004	.019	.004	.219**
Step 2					
Constant	2.353***	1.798	2.909	.282	
Sex	-.035	-.191	.122	.079	-.026
Age	.014***	-.007	.020	.003	.259
GCS	-.018***	-.022	-.014	.002	-.493***
Step 3					
Constant	2.119***	1.511	2.727	.308	
Sex	-.057	-.211	.097	.078	-.043
Age	.009*	.002	.016	.003	.171*
GCS	-.014***	-.018	-.009	.002	-.376***
EDSS	-.068**	.026	.110	.021	.230**
MFIS	.002	-.003	.007	.002	.057
BDI	.013***	.005	.020	.004	.260***
MSIS	-.005*	-.009	-.001	.002	-.242*

*p < .05; **p < .01; ***p < .001

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