

The impact of visible and invisible symptoms on employment status and work and social functioning in Multiple Sclerosis

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Background. Frequently diagnosed in young adulthood, multiple sclerosis (MS) and several MS-related factors can influence patients' unemployment status and negatively affect work productivity and daily functioning.

Aims. We examined MS patients' employment status and evaluated clinical features influencing it. Furthermore, we investigated patients' burdens due to visible and invisible MS symptoms through their worsening daily functioning.

Materials and Methods.

The study included outpatients affected by MS according to the 2010 McDonald criteria. The co-occurrence of invisible symptoms (fatigue, depression and apathy) was stated using validated, self-administered tools: Fatigue Severity Scale (FSS); Beck Depression Inventory-Second Edition (BDI-II); Apathy Evaluation Scale (AES-S). Impairment in daily functioning due to MS was assessed using the Work and Social Adjustment Scale (WSAS). Descriptive statistics, hierarchical regression analyses, Pearson's correlation, and the *t*-test were conducted.

RESULTS

Of the 123 participants, 52 (42.3%) were unemployed (Tab 2). Results showed employment to be positively associated with higher education levels (*p* 0.01); female gender (*p* 0.03) and higher disability (*p* 0.02) showed negative associations with employment (Tab3). No associations were found between unemployment and fatigue or clinically relevant depressive and apathetic symptoms (Tab3). High correlations were found between WSAS score and Expanded Disability Status Scale score (*r* = .565, *p* < 0.001), BDI-II score (*r* = .588, *p* < 0.001), and FSS score (*r* = .545, *p* < 0.001). Table 4.

Table 1

Demographic Data	MS Patients (123)
Sex	
Female	85 (69.1%)
Age (years ±sd)	37.9 ± 9
Education (years ±sd)	12.4 ± 3.9
Clinical data	
Disease course	
Relapsing MS	103 (83.7%)
Age at onset	28.7 ± 8.8
Disease duration (years ±sd)	9.2 ± 6
EDSS (mean ±sd)	2.4 ± 1.8
EDSS <4	102
EDSS 4–6	14
EDSS >6	7

Table 2

Employment Status	MS Patients (123)
Employed	63 (51.2%)
Unemployed	52 (42.3%)
Students	7 (5.7%)
Retirees	1 (0.8%)
Type of Job Contract	Employed Patients (63)
Permanent contract	35 (55.5%)
Fixed-term contract	10 (15.9%)
Others	18 (28.6%)
Financial Assistance	
Unemployment allowance	1 (0.8%)
Scholarship	4 (3.3 %)
Disability pension	18 (14.6%)
Financial aid by family	6 (4.9%)
No financial assistance	94 (74.4%)

Logistic Regression Analysis		B	Sig.	Exp (B)	95% C.I. for EXP (B)
					Lower
Table 3 Variables: employment	Female gender	-1.018	.038*	.361	.138
	Age	.005	.847	1.005	.955
	Education	.143	.013*	1.154	1.031
	Age at onset of MS	-.017	.668	.984	.912
	Disease duration	.022	.572	1.022	.947
	EDSS score	-.399	.021*	.671	.478
	Apathy	-.142	.772	.868	.332
	Depression	-.492	.365	.611	.211
	Fatigue	.742	.179	2.101	.712

Table 4	Ability to work	Home management	Social activities	Leisure activities	Close relationships	WSAS total score
Age	<i>r</i> = 316, <i>p</i> < 0.001	<i>r</i> = 410, <i>p</i> < 0.001	<i>r</i> = 278, <i>p</i> = 0.002	<i>r</i> = 245, <i>p</i> = 0.006	<i>r</i> = 260, <i>p</i> = 0.004	<i>r</i> = 356, <i>p</i> < 0.001
Disease duration	<i>r</i> = 278, <i>p</i> < 0.002	<i>r</i> = 306, <i>p</i> = 0.001	<i>r</i> = 280, <i>p</i> = 0.002	<i>r</i> = 314, <i>p</i> < 0.001	<i>r</i> = 219, <i>p</i> = 0.015	<i>r</i> = 332, <i>p</i> < 0.001
EDSS score	<i>r</i> = 595, <i>p</i> < 0.001	<i>r</i> = 589, <i>p</i> < 0.001	<i>r</i> = 448, <i>p</i> < 0.001	<i>r</i> = 427, <i>p</i> < 0.001	<i>r</i> = 308, <i>p</i> < 0.001	<i>r</i> = 565, <i>p</i> < 0.001
AES-S score	<i>r</i> = 251, <i>p</i> = 0.005	<i>r</i> = 306, <i>p</i> = 0.001	<i>r</i> = 408, <i>p</i> < 0.001	<i>r</i> = 334, <i>p</i> < 0.001	<i>r</i> = 391, <i>p</i> < 0.001	<i>r</i> = 392, <i>p</i> < 0.001
BDI-II score	<i>r</i> = 396, <i>p</i> < 0.001	<i>r</i> = 478, <i>p</i> < 0.001	<i>r</i> = 530, <i>p</i> < 0.001	<i>r</i> = 517, <i>p</i> < 0.001	<i>r</i> = 611, <i>p</i> < 0.001	<i>r</i> = 588, <i>p</i> < 0.001
FSS score	<i>r</i> = 484, <i>p</i> < 0.001	<i>r</i> = 465, <i>p</i> < 0.001	<i>r</i> = 441, <i>p</i> < 0.001	<i>r</i> = 537, <i>p</i> < 0.001	<i>r</i> = 367, <i>p</i> < 0.001	<i>r</i> = 545, <i>p</i> < 0.001

Conclusion

Our study revealed the important role of **physical disability in determining unemployment** in pwMS. Alternatively, **invisible MS symptoms negatively and specifically affect daily functioning**, principally affecting patients' social life, close relationships, and leisure activities. Therefore, several programs should be designed to facilitate the acceptance of pwMS at work, and focused psychosocial interventions are essential to improve the social integration and daily activities of pwMS.