Disability Predicts Longitudinal Depression in People with Multiple Sclerosis

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Abstract

Background: Depression has been shown to be more stable over time in individuals with multiple sclerosis (MS) than in the general population. However, it is unclear what factors account for the stability of depression in people with MS. Prior research has found Expanded Disability Status Scale (EDSS) scores and measures of fatigue to be significant predictors of depression, but patients' subjective perceptions of their disability have not been examined in this context.

***Objective*:** To evaluate the predictive value of ISS data on depression over time.

***Methods*:** Participants (N = 121) were recruited from an outpatient clinic at a large medical center in New Jersey. Longitudinal data were collected as part of an ongoing research project. Participants filled out a Beck Depression Inventory-II (BDI-II), Incapacity Status Scale (ISS), and a demographic questionnaire. Linear regressions were used to assess the ISS as a predictor of BDI-II score at baseline and follow-up, and of change in BDI-II over time.

***Results*:** ISS positively predicted BDI-II score at baseline (β = .429, p<.001) at follow-up (β =.380, p< .001), and over time (β =.272 , p=003).

***Conclusion*:** Higher levels of disability predict greater depression in individuals with MS, both cross-sectionally and longitudinally.

Background

•Studies have shown that depression is stable over time, with baseline depression being the best predictor of depression at follow-up.[2-5]

•Severity of MS more significantly predicts depression than disease duration.[1,4,6]

•However, change in disability status does not predict increase in depression.[4]

•Previous studies have used the Expanded Disability Status Scale to measure disease severity based upon a neurologist examination, but this study used the Illness Severity Scale which uses a structured interview of patient perception to determine disease severity.

•This study aims to evaluate the predictive value of ISS data on depression over time.

Methods

Sample: Participants (N=121) were recruited from an outpatient clinic, the MS Center at Holy Name Hospital in Teaneck, NJ. They all had a neurologist-confirmed diagnosis of MS. Individuals were allowed to participate each time they visited the clinic.

Materials: *Beck Depression Inventory-II (BDI-II)*: A 21-item self-report inventory that uses a 4-point (0-3) Likert scale to assess severity of depression. The items correspond to the diagnostic criteria for major depressive disorder outlined in the DSM-IV.Total scores range from 0 (no symptoms) to 63 (severe symptoms).

Incapacity Status Scale (ISS): A 16-item scale used to assess the severity of disability in individuals with MS.A clinician rates the patient's disability from 0 (no impairment) to 4 (inability to perform) on a number of activities of daily living. This study used the total score to assess overall disability .

Statistics: Changes in total depression and disability were calculated by subtracting scores at the participant's final time point from scores at the first time point (Time 2 – Time 1). The primary analysis for this study is a linear regression used to examine the ISS as a predictor of BDI-II score at baseline and follow-up, and of change in BDI-II over time

Results

Table 1. Depression Stability Over Time Compared to Disability Over Time

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Age	-										
2. Time	.05	-									
3. BDI baseline	.02	.11	-								
4. BDI follow-up	.11	.08	.66**	-							
5. BDI Change	-.10	-.03	-.40**	.43**	-						
6. Gender˜	.08	-.03	-.06	-.15	-.15	-					
7. ISS baseline	.33**	-.07	.43**	.27**	-.18*	-.11	-				
8. ISS Follow-up	.34**	.00	.38**	.38**	.01	-.01	.77**	-			
9. ISS change	.05	.11	-.03	.19*	.27*	.11	-.24**	.43**	-		
10. Married˜	.03	.03	-.14	-.08	.02	-.06	-.06	-.14	-.08	-	
11. Employment˜	-.16	-.10	-.07	-.08	.05	-.21*	-.31**	-.24**	.05	-.08	-

˜Spearman's Rho correlations, * p < .05 (two-tailed), **p < .01 (two-tailed)

Table 2. Demographics

Variable	N	Percent
Gender		
Female	80	66.1
Male	41	33.9
Married Status		
Married	93	23.1
Not Married	28	76.9
Employment		
Not Working	47	39.2
Working Part-time	12	10.0
Working Full-time	61	50.8

Table 3. Data Distribution

Variable	N	Range	Mean (SD)
Age	121	24-62	42.73 (8.20)
BDI-II			
BDI-II Total Initial	121	0-47	13.17 (10.12)
BDI-II Total Follow-up	121	0-52	12.45 (10.28)
Time (in months)	121	2.14-71.33	34.03 (17.45)
ISS			
ISS Total	121	0-28.5	7.93 (5.81)
ISS Total Follow-up	121	0-31.5	8.84 (6.23)

Conclusions

•The results of this study suggest that higher levels of disability predict greater depression in MS initially, at follow-up and over time

•This is consistent with the literature that MS severity is a significant predictor of depression.[1,4,6]

•These results also indicate that ISS can be used as a predictor of depression.

•These results make sense, as the ISS is highly correlated with the EDSS.

•Employment was also significant with ISS data suggesting possible indications for lack of employment

• It is worth noting that ISS scores were stable over time in this sample, which may confound the results. Therefore, It is possible that the stability seen in depression was the result of illness severity stability.

References

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