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# Is the Beck Depression Inventory Fast-Screen a valid screening tool for MS- patients ? A comparison to its full-length version.



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## Introduction

In the context of Multiple Sclerosis (MS), the clinician is confronted with the difficulty of correctly diagnosing the presence of a depressive episode in a patient presenting with similar symptoms that could be related to MS (fatigue, sleep disorders, cognitive impairment...). This overlap between MS-symptoms and depressive symptoms may thus **artificially inflate the overall depression score in patients.**

While the presence and importance of depressive symptoms has long been measured using the 21-item *Beck Depression Inventory* (BDI-II) in persons with MS (PwMS), experts more recently recommended to use a reduced form of this screening tool (*BDI-Fast Screen*, BDI-FS, 7 items).

## Objectives

We compared the prevalence of depression assessed by the BDI-II and the BDI-FS in a sample of 331 patients with MS.



I can sleep as well as usual.  
 I don't sleep as well as I used to.  
 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep. I wake up several hours earlier than I used to and cannot get back to sleep.

I don't get more tired than usual.  
 I get tired more easily than I used to.  
 I get tired from doing almost anything. I am too tired to do anything.

I make decisions about as well as I ever could.  
 I put off making decisions more than I used to.  
 I have greater difficulty in making decisions more than I used to. I can't make decisions at all anymore.

Figure 2. Examples of somatic items in the BDI-II omitted in BDI-FS to prevent confounding effects due to overlapping symptoms

## Methods

PwMS N = 329	RRMS 61,4 %	SPMS 30,7 %	PPMS 7,9 %
Sex ratio : 70,8 females			
Mean Age (SD)		48,1 (10,1)	
Mean Disease duration (SD)		12,1 (8,04)	
EDSS (median)		4	

## Results

### 1) Clinical equivalence of scales :

- Prevalence of depression: **BDI-II = 54,1% > BDI-FS = 30.7% (p < .001).**
- The odds of being screened “depressed” using BDI-II were 2.61 times higher than the odds of being screened “depressed” using BDI-FS (CI 95%: 1.89-3.59, p < .001)
- **Low concordance between BDI-II and BDI-FS: kappa value of 0.41 (CI 95%: 0.34-0.489).**

### 2) Demographic and clinical parameters :

- Negative associations between depression scores and disease duration : **BDI-II,  $r_s = -0.15$  (p < .01) vs BDI-FS,  $r_s = -0.12$  (p < .05).**
- Absence of significant MS-phenotype differences on levels of depression.

## Discussion

- Poor agreement and unequal ability to detect affective disturbances in PwMS between BDI-II and BDI-FS.
- BDI-FS seem to remain effective for identifying severe conditions.
- Somatic symptoms may contribute to **false-positive results** when the full version of the BDI-II is implemented

Table 1. Prevalence (%) of depressive symptoms on BDI-II and BDI-FS (N = 329).

BDI-II	N	%
<b>Multiclass classification</b>		
Normal (scores 0-9)	151	45.9%
Mild depression (scores 10-18)	106	32.2%
Moderate depression (scores 19-29)	56	17.0%
Severe depression (scores 30-63)	16	4.9%
<b>Binary classification</b>		
Absence of symptoms (scores 0-9)	151	45.9%
Presence of Symptoms (scores 10-63)	178	54.1%
BDI - FS	N	%
<b>Multiclass classification</b>		
Normal (scores 0-4)	228	69.3%
Mild depression (scores 5-6)	52	15.8%
Moderate depression (scores 7-9)	29	8.8%
Severe depression (scores 10-21)	20	6.1%
<b>Binary classification</b>		
Absence of symptoms (scores 0-4)	228	69.3%
Presence of Symptoms (scores 5-21)	101	30.7%

BDI-II, Binary Score      BDI-FS, Binary Score

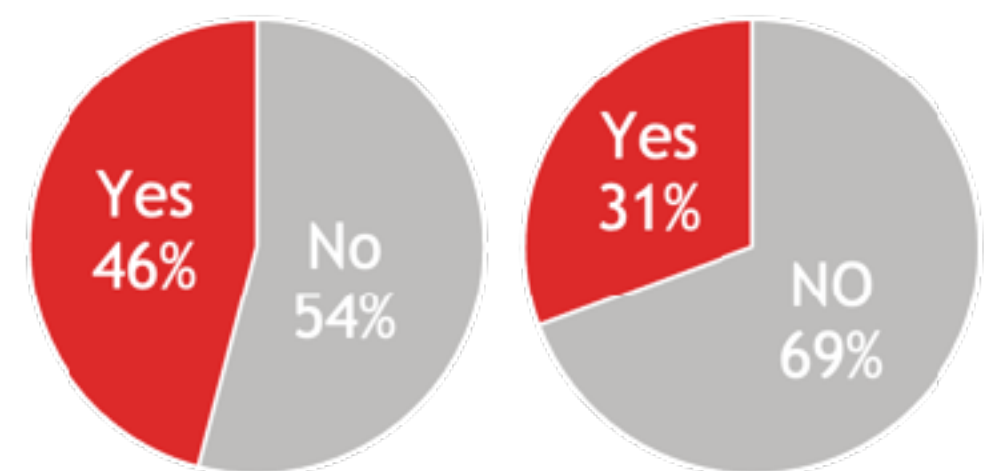


Figure 2. Prevalence (%) of depressive symptoms on BDI-II and BDI-FS (N = 329).

## Conclusion

Despite the 2003 and 2018 recommendations (Benedict et al., 2002, Kalb et al., 2018), the BDI-II remains widely used, including in recent work (Bogaardt et al., 2023). It is thus crucial to raise awareness about the potential implications of choosing either of these tools for reported levels of depression.

## References

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