

Affective-motivational Dysfunction And Amygdala-centered Network Alterations In Mild Behavioral Impairment

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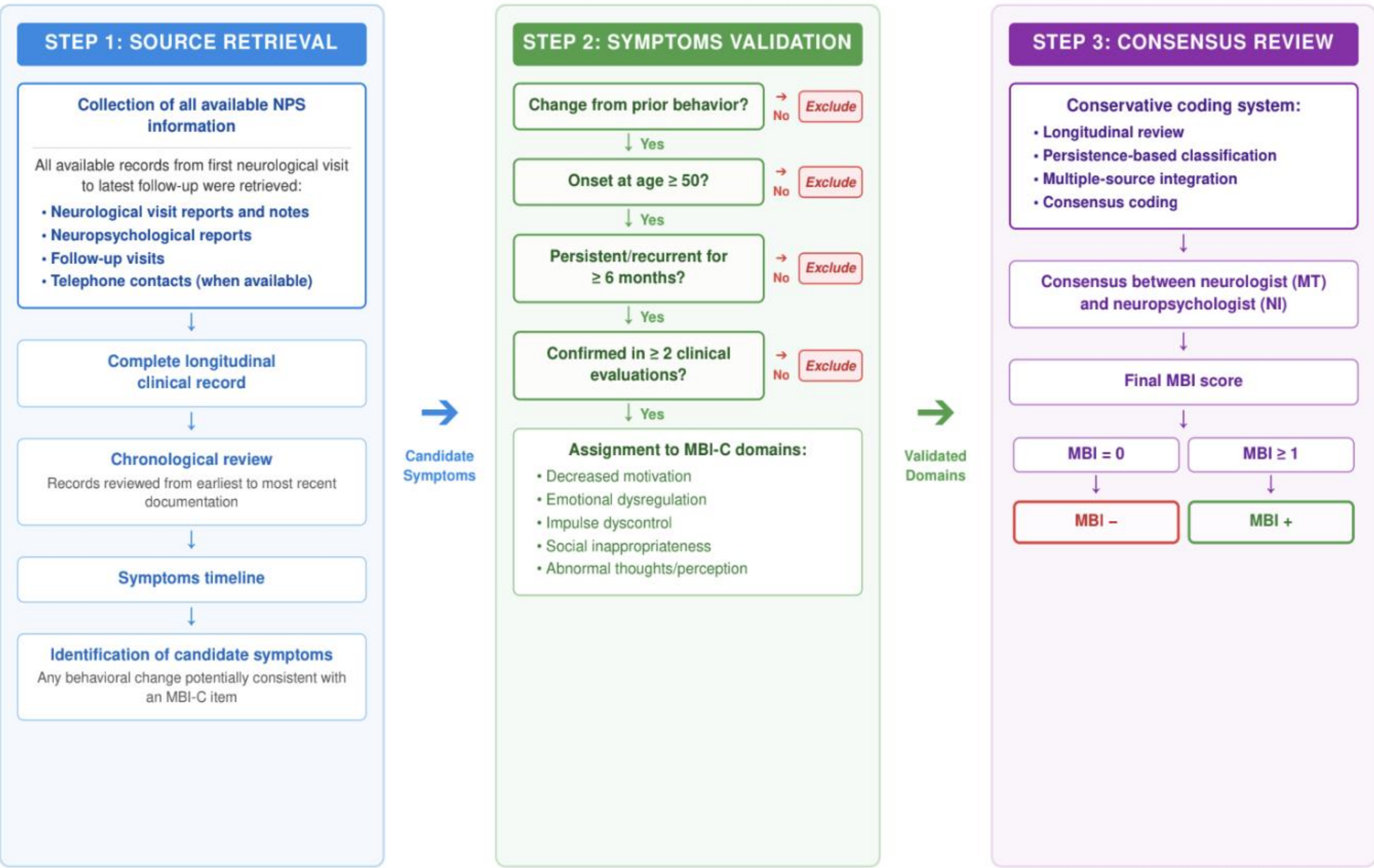
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Background: Mild Behavioral Impairment (MBI) captures the emergence of persistent neuropsychiatric symptoms in late life and represents an important clinical construct within the Alzheimer’s disease (AD) continuum. MBI is clinically heterogeneous, frequently involving affective, motivational, and impulse-control symptoms. However, the functional brain mechanisms underlying MBI, particularly from a neuropsychological and systems-level perspective, remain incompletely understood. Given its central role in emotional salience and behavioral regulation, the amygdala represents a key hub for investigating early neuropsychiatric manifestations of AD.

Methods: Patients with MCI due to AD were retrospectively classified as MBI+ and MBI– according to the Mild Behavioral Impairment Checklist (MBI-C), following a structured chart-to-MBI flow. Resting-state fMRI data were analyzed using a seed-based approach with bilateral amygdalae as seeds. Group comparisons controlled for age, sex, education, and global cognitive status.

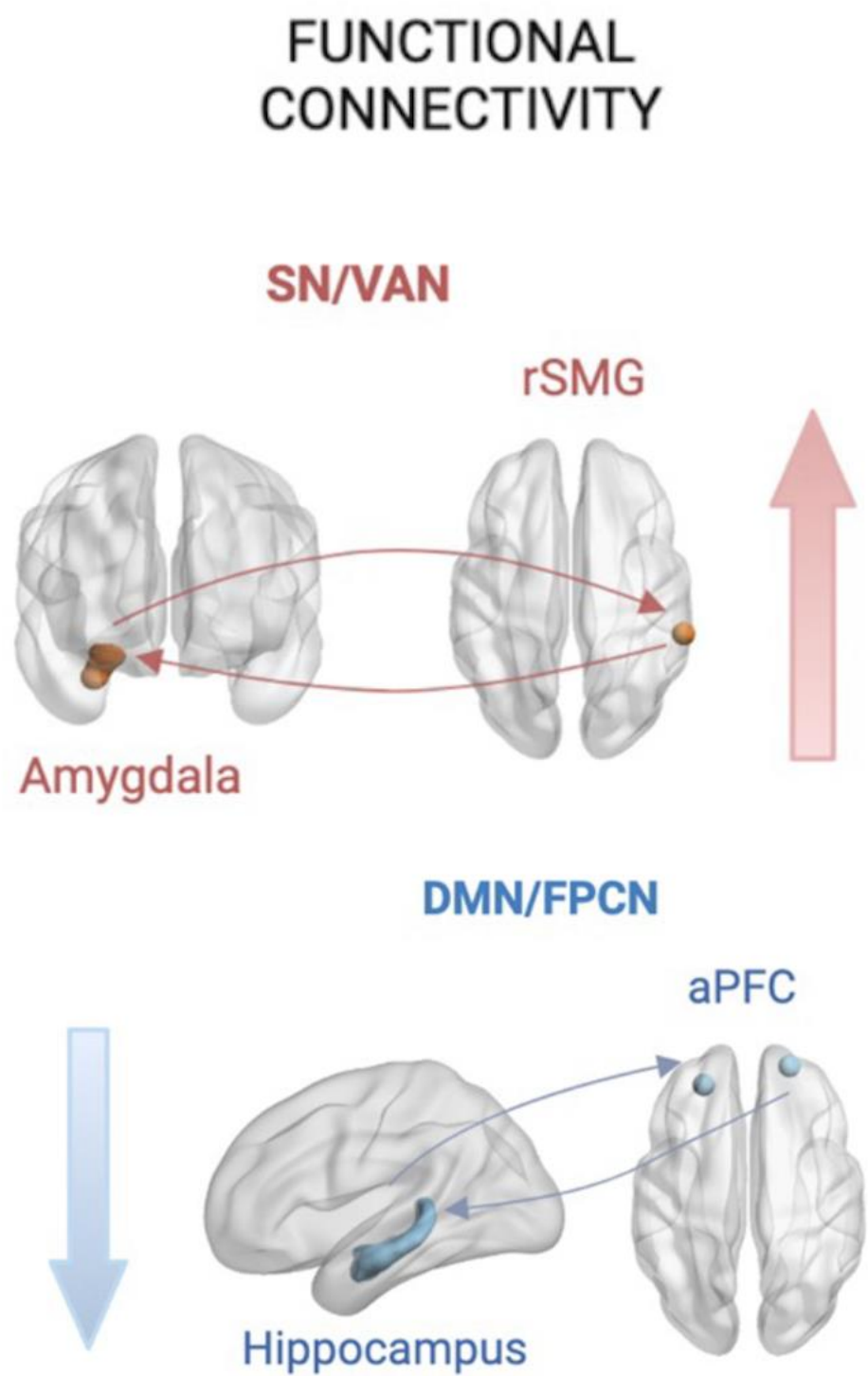
RESULTS

MBI+ and MBI– patients did not differ in demographic variables or global cognition. Within the MBI+ group, decreased drive and motivation and impulse dyscontrol were the most prevalent symptoms, often co-occurring across domains. Compared to MBI– patients, MBI+ individuals exhibited altered amygdala-centered functional connectivity involving regions implicated in salience and attentional processing.



	Whole group (n = 29)	MBI+ (n = 17)	MBI- (n =12)	Group Comparison
Age (years)	67.4 (±6.7)	68.2 (± 6.8)	66.2 (± 6.8)	p = 0.4
Gender F:M	13:16	8:9	5:7	p = 0.8
MMSE	26.9 (± 1.7)	26.8 (± 1.8)	27 (± 1.6)	p = 0.8
School age	11.4 (± 4)	11.7 (± 4.3)	11 (± 3.5)	p = 0.7

MBI-C classification	Whole group (n = 17)
MBI-C total score	6.5 (± 4.9)
Apathy	2.2 ± (2.6)
Affective dysregulation	1.04 ± (1.4)
Impulse dyscontrol	2.2 ± (2.8)
Social inappropriateness	(1.04 ± 2.1)
Abnormal perception or thoughts	-



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CONCLUSIONS

Mild Behavioral Impairment reflects early affective-motivational and behavioral regulation disturbances that occur independently of global cognitive decline in early Alzheimer’s disease. These findings support a neuropsychological framework in which MBI reflects domain-specific alterations in emotional salience and behavioral control, highlighting the potential central role of the amygdala in these processes.