

Mild behavioural impairment and falls among dementia-free older Canadians: a cross-sectional study

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Introduction

- **Mild behavioural impairment (MBI)** is a dementia risk indicator that captures later-life emergent and persistent neuropsychiatric symptoms.¹
- There are 5 domains: decreased motivation, affective dysregulation, impulse dyscontrol, social inappropriateness, and abnormal perception/thought content.¹
- MBI is also associated with early changes in function.
- **Falls** are **highly prevalent** among individuals with dementia,² which is a relevant clinical outcome due to risk of injury, medical complications, and loss of independence.³

Given neuropsychiatric symptoms are associated with gait changes, frailty, and falls risk, we investigated the association with MBI.⁴⁻⁷

Methods

- **Cross-sectional data** from dementia-free older adults aged ≥ 50 years in the CAN-PROTECT study.⁸

CAN-PROTECT

- MBI total & domain score $\rightarrow$ self-reported MBI-Checklist.⁹
- Falls $\rightarrow$ Did the participant experience/ report more than one fall or near fall during the previous year? (0, ≥ 1)
- **Logistic regression** models were used.

MBI symptom severity (exposures)

Falls (outcome)

- Covariates: age, sex, education, marital status, and cognition (total score on the Everyday Cognition (ECog-II scale)).¹⁰
- An MBI severity*sex interaction term was also assessed.
- ECog sum was separately modelled as an exposure, controlling for age, sex, education, and marital status.¹⁰

Results

Greater MBI severity, particularly impulse dyscontrol and affective dysregulation, was associated with higher odds of falls/near falls.

Table 1. Participant characteristics	
n	1948
Age (years)	64.6 (7.7), 50.0-94.0
Sex (female)	1563 (80.2%)
Education (years)	16.0 (4.5), 3.0-28.0
Marital Status (married)	1502 (77.1%)
Fall/near fall (in last year)	218 (11.2%)
Weakness or legs giving out	33 (15.1%)
Impaired vision	11 (5.0%)
Poor decision making (e.g., ladders, roofs, counters)	28 (12.8%)
Slip on wet/icy surface	94 (43.1%)
Tripping on something	126 (57.8%)
Fainting or dizziness when standing up from sitting or lying	22 (10.1%)
Fainting or dizziness not when standing up from sitting or lying	10 (4.6%)
Falling forward for no clear reason	17 (7.8%)
None of the above	14 (6.4%)
MBI-C total score	5.6 (7.7), 0.0-65.0
ECog-II total score	12.4 (12.1), 0.0-99.0

Table 2. Cross-sectional associations			
Exposure	Odds Ratio	95% CI	p-value
MBI-C total score	1.03	1.01 – 1.05	0.006*
Decreased motivation	1.04	0.99 – 1.10	0.138
Affective dysregulation	1.06	1.00 – 1.10	0.039*
Impulse dyscontrol	1.09	1.03 – 1.15	0.001*
Social inappropriateness	1.17	0.98 – 1.37	0.067
Abnormal perception/thought content	1.19	0.98 – 1.43	0.058
ECog-II sum	1.04	1.03 – 1.05	<0.001*

- Non-significant MBI-C total score*sex interaction term ($p=0.5716$)
- Greater MBI symptom severity and subjective cognitive changes were associated with higher odds of falls.
- Domain-specific associations observed for **affective dysregulation** (e.g., depression and anxiety) and **impulse dyscontrol** (e.g., agitation and aggression).

Why is this important? These findings suggest that MBI may serve as a multidimensional marker of functional vulnerability in later life.

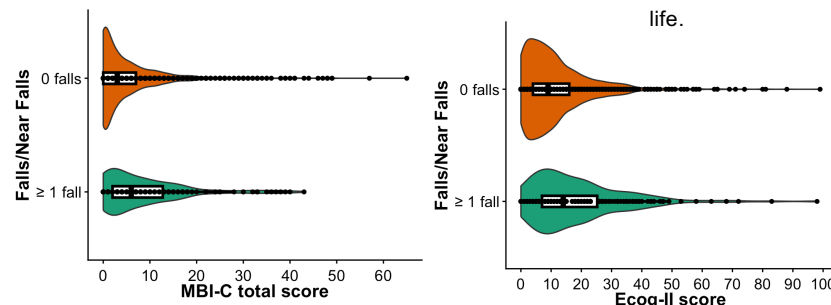


Figure 1. Distribution of MBI-C and ECog total scores by falls status, showing violin plots for participants with 0 falls and ≥ 1 fall.

For more information



Are you 18 years of age or older and interested in joining a Canada-wide study on brain aging? Scan the QR code to learn more.

