

Trajectory of apathy and its association with cognition and everyday functioning in Alzheimer's disease



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BACKGROUND

- Apathy** is a highly prevalent neuropsychiatric symptom in Alzheimer's disease (AD)¹.
- Yet our understanding of the **trajectory** of apathy across the AD clinical continuum remains limited.

AIM

- To examine the trajectory of apathy in MCI and mild AD and its association with baseline cognition and everyday functioning.
- To explore whether changes in apathy were correlated with changes in cognition and everyday functioning.

METHODS

Participants and design:

- N = 158 with Mild Cognitive Impairment (MCI) due to AD or mild AD^{2,3} (MMSE ≥ 18 ; Table 1) from an international, multicenter Capturing Changes in Cognition cohort in the Netherlands and Scotland⁴.

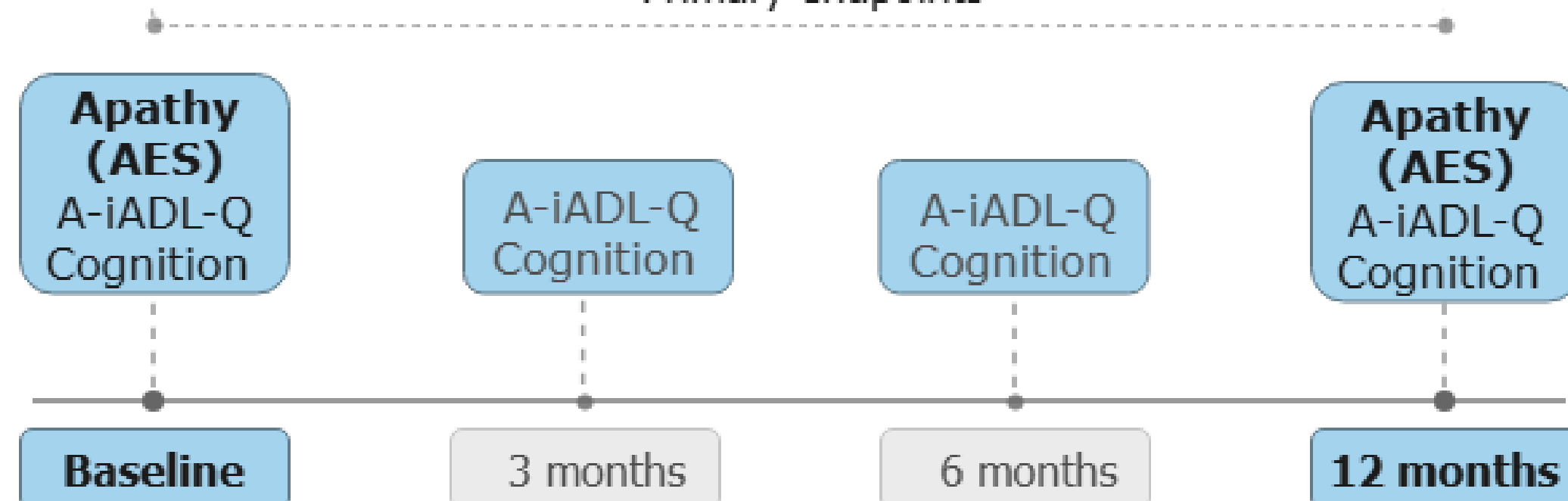
Measures:

- Informant-based Apathy Evaluation Scale (**AES**)⁵.
- Informant-based Amsterdam Instrumental Activities of Daily Living Questionnaire (**A-IADL-Q**)⁶.
- Cognitive Composite (**CC**) consisting of memory and executive function tests^{2, 7}.

Statistical analysis:

- Linear mixed models, adjusting for age, sex and education, were used to examine the trajectory of AES-scores by diagnostic group and its association with baseline CC and IADL.
- Pearson's correlations for change scores between AES, CC and IADL.

Primary endpoints



RESULTS

Table 1. Demographic and Clinical Characteristics at Baseline

	Total group (n = 158)	MCI (n = 79)	Mild AD (n = 79)	P-value two sided *
Age, years, M (SD)	72.5 (8.6)	73.7 (7.9)	71.3 (9.1)	.076
Female, %	43.0%	36.7%	49.4%	.148
Education, years, M (SD)	13.5 (3.8)	13.7 (3.6)	13.3 (4.0)	.501
MMSE, M (SD)	25.3 (3.1)	26.7 (2.3)	24.0 (3.3)	< .001
AES, M (SD)	41.5 (10.4)	39.5 (10.5)	43.4 (10.0)	.018
A-IADL-Q, M (SD)	-0.03 (0.9)	0.4 (0.7)	-0.5 (0.9)	< .001
CC, M (SD)	-0.1 (0.6)	0.2 (0.5)	-0.3 (0.6)	< .001

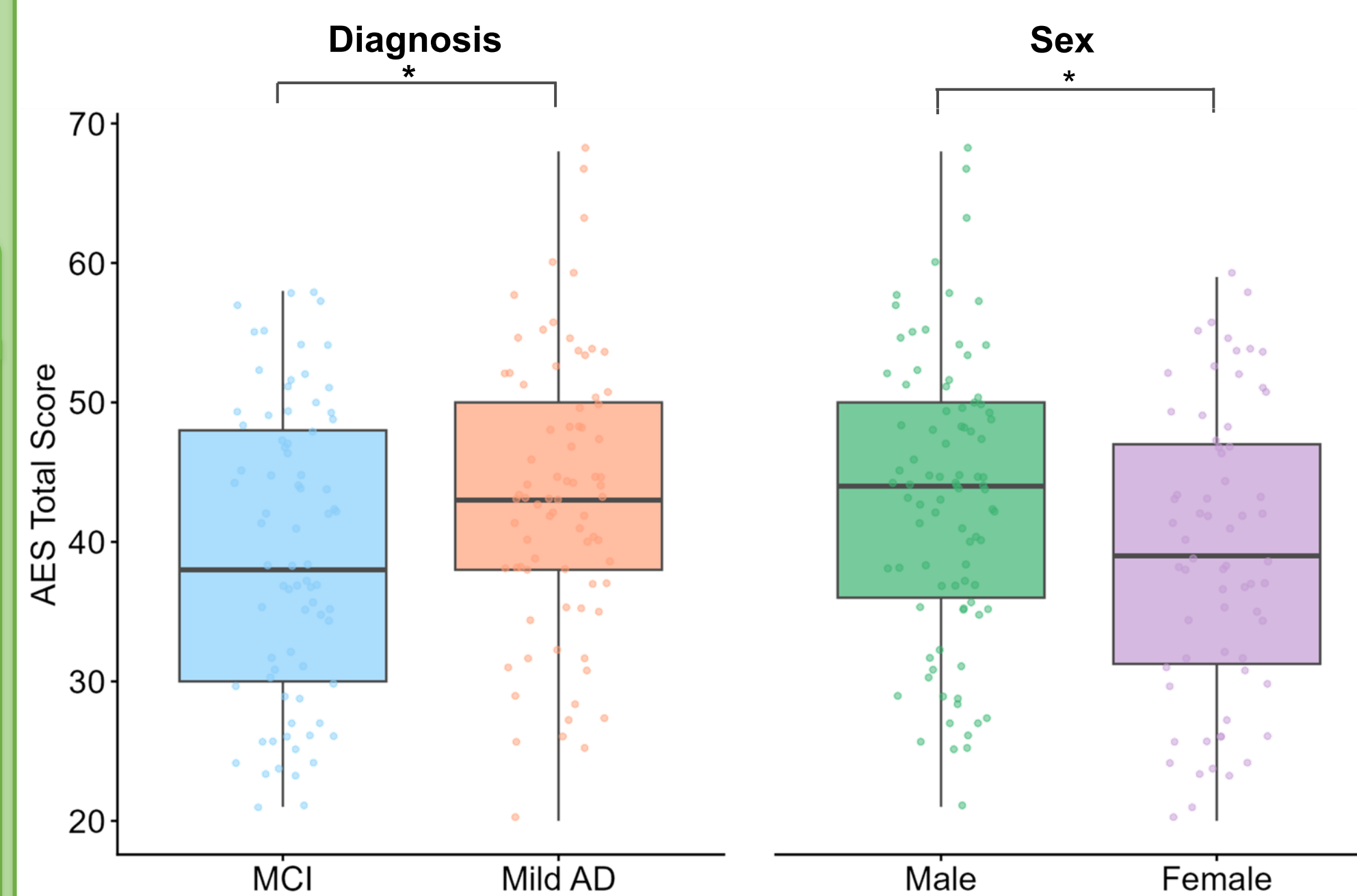


Figure 1. Baseline Apathy scores by Diagnosis and Sex

- Only the mild AD group showed an **increase** in AES-scores after 12-months (Figure 1).

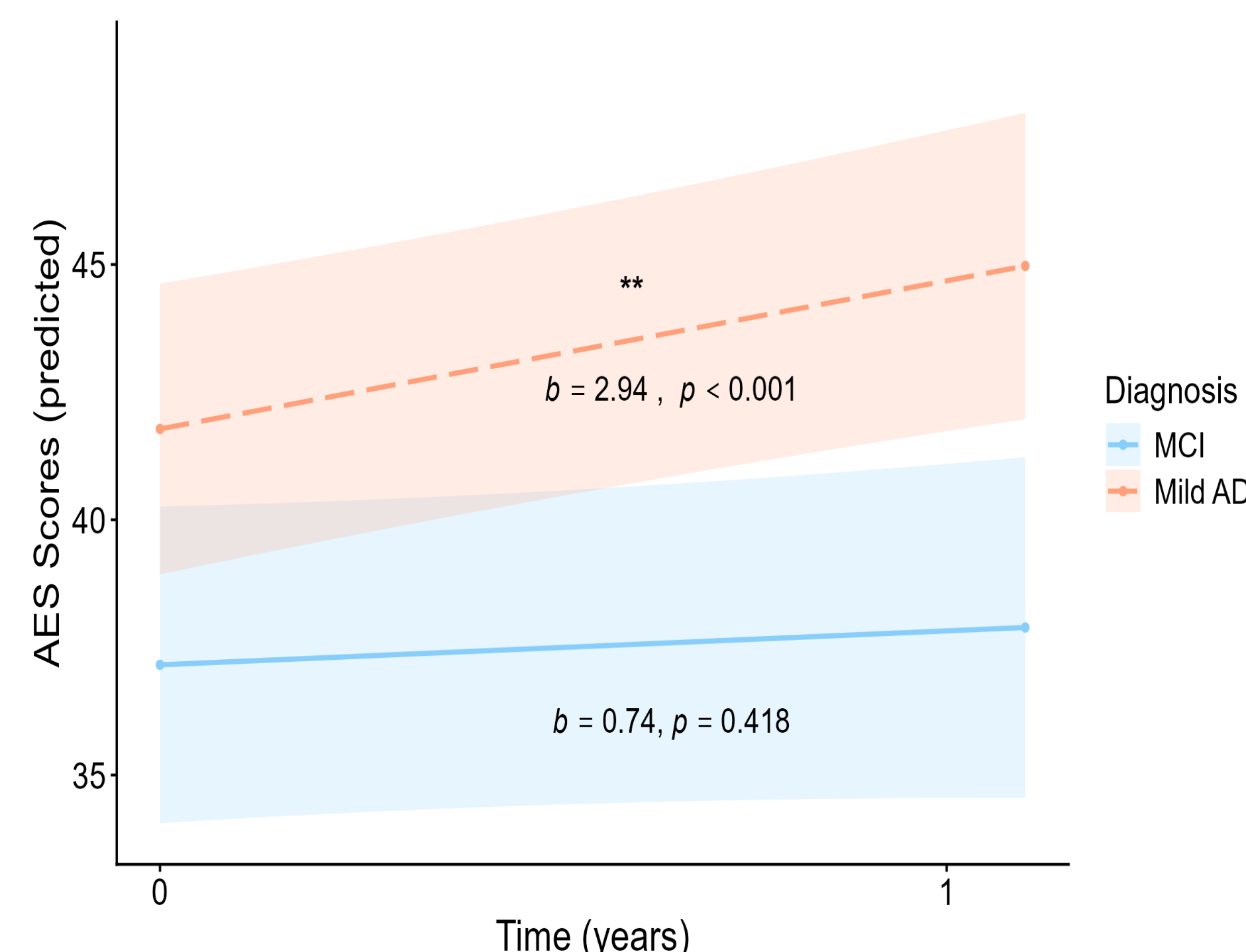


Figure 1. Trajectory of Apathy (corrected for age, sex and education) in MCI and Mild AD.

RESULTS

- In **mild AD**, worse baseline **A-IADL-Q** scores were cross-sectionally associated with higher AES-scores (Figure 2), but not with change in AES-scores over time.
- No associations between AES-scores and CC-scores were found.
- In **MCI**, no associations were significant for either A-IADL-Q or CC-scores.

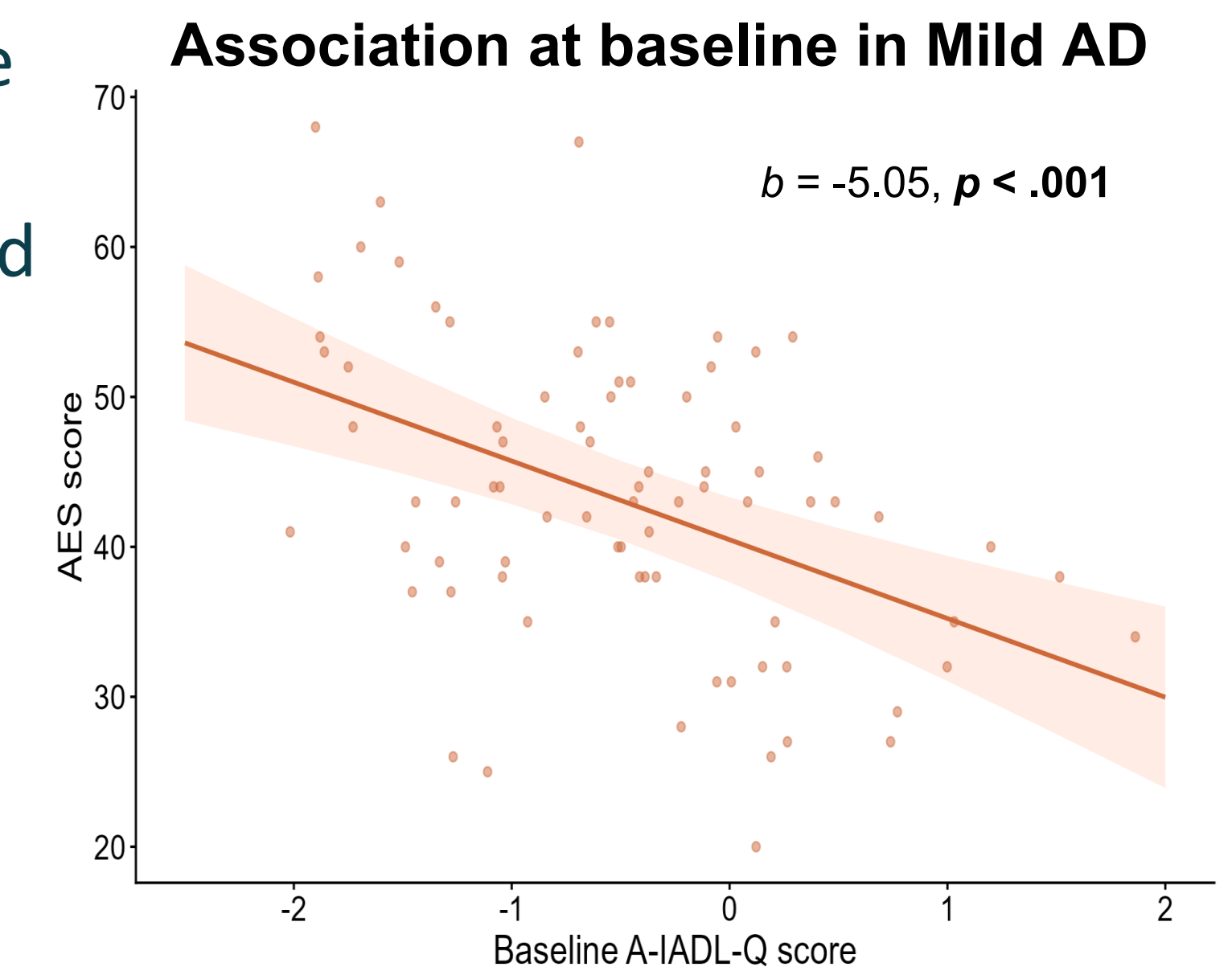


Figure 2. Association Between Baseline Everyday Functioning and Apathy Severity in Mild AD. The line represents predicted values (corrected for age, sex and education) and the dots raw data points.

- In **mild AD**, a **decrease** in A-IADL- scores was significantly correlated with an **increase** in AES-scores (Figure 3).
- In **MCI**, no correlations were significant between any of the change scores.

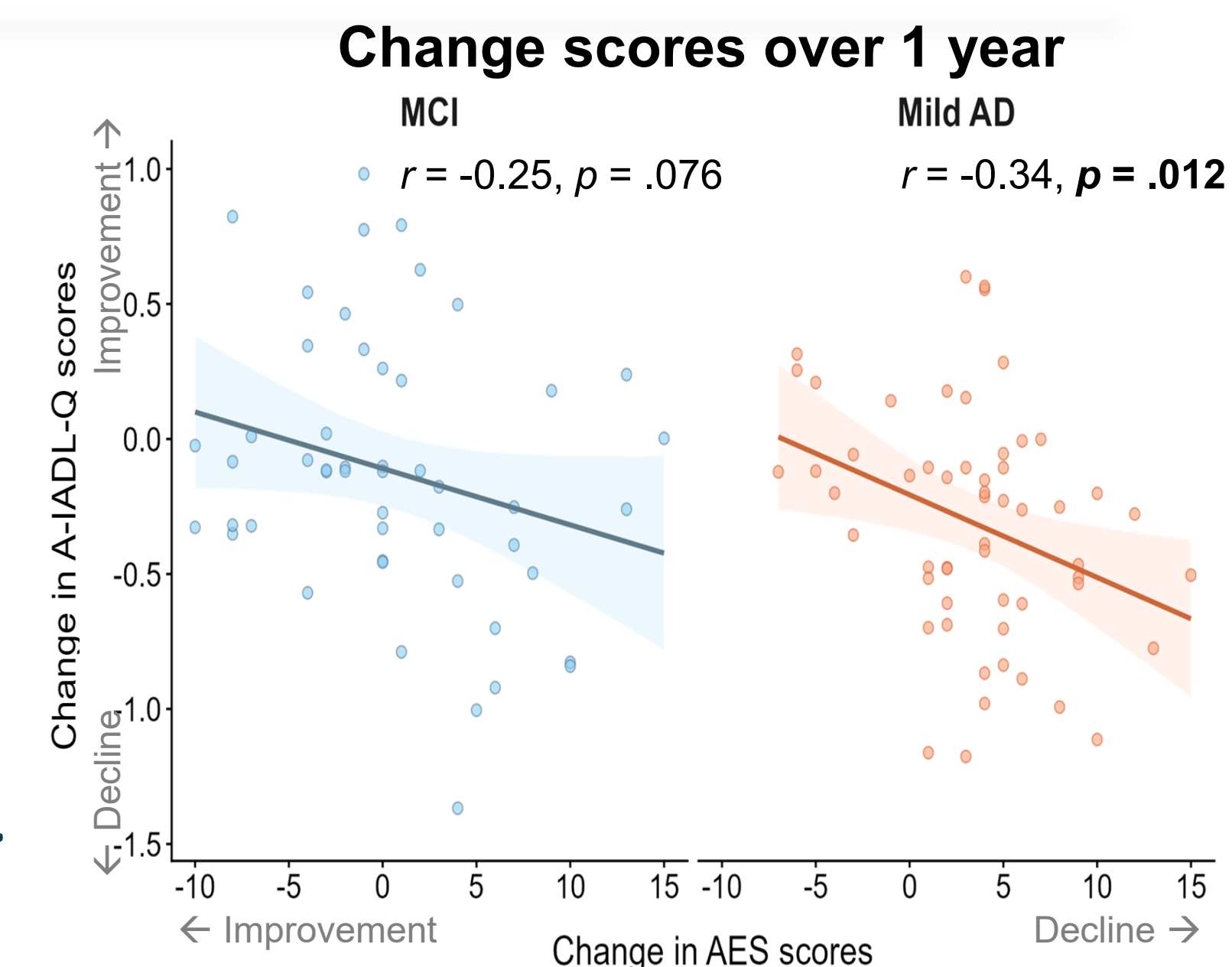


Figure 3. Change in apathy scores and change in everyday functioning over 1 year in MCI and Mild AD.

CONCLUSION

- Apathy symptoms increased over one year in mild AD**, but not in MCI.
- Only in mild AD, apathy was cross-sectionally associated with **everyday functioning** at baseline. In addition, a decline in everyday functioning correlated with an increase in apathy symptoms over one year.
- These results suggest that apathy and its relationship with everyday functioning **may become more pronounced as AD progresses**, highlighting the need to tailor apathy detection and interventions to an individual's clinical disease stage.