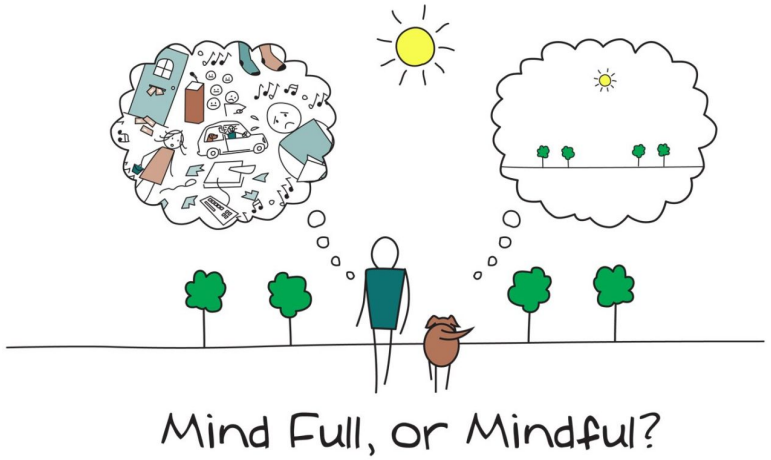
Trait mindfulness is associated with amyloid, tau and cognition in preclinical Alzheimer's disease

Cherie Strikwerda-Brown[1,2], Hazal Ozlen[1,2], Alexa Pichet Binette[1,2], Marianne Chapleau[1], Sylvia Villeneuve[1,2], PREVENT-AD Research Group
1. McGill University, Montreal, Canada. 2. Douglas Mental Health University Institute, Montreal, Canada.

BACKGROUND

Mindfulness: "The ability to engage in non-judgmental awareness of the present moment"



- Mindfulness is associated with an array of mental and physical health benefits
  (e.g., depression, anxiety, stress, sleep, pain, cardiovascular health, …)
- Psychological traits such as increased depression, anxiety, and neuroticism are associated with an increased risk of Alzheimer's disease (AD)
- It remains unclear whether 'positive' psychological traits such as **mindfulness** may have a **protective effect** on the development of **AD**

AIM: Explore how mindfulness traits relate to pathological and cognitive markers of AD in the preclinical stage

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METHODS

1. Participants

261 cognitively normal participants with a family history of AD

	Age, mean (SD)	Sex, F:M (%F)	Education, mean (SD)	APOE ε4 carriers, n (%)
Cognition sample (n = 261)	63.18 (4.73)	186:75 (71.3%)	15.50 (3.46)	101 (38.7%)
AD pathology subsample (n = 124)	63.97 (4.78)	93:32 (74.2%)	15.25 (3.29)	76 (38.7%)

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3. Analyses

Multivariate Partial Least Squares (PLS):

Elicits combinations of variables that are maximally correlated with one another

<u>3 Separate PLS analyses –</u>

Multivariate relationship between **5 Mindfulness Subscales** and:

1. **38 Aβ SUVR regional values**
2. **14 tau SUVR regional values**
3. **6 Cognitive Indexes**

2. Measures

Five Facet Mindfulness Questionnaire (FFMQ)

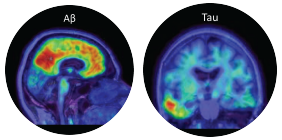
Subscales:

- Observing
- Describing
- Acting with Awareness
- Nonjudgment
- Nonreactivity

RBANS Cognitive Assessment

Cognitive Indexes:

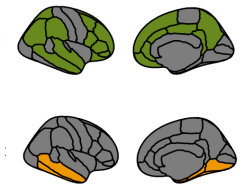
- Attention
- Visuospatial
- Language
- Immediate Memory
- Delayed Memory
- Global Cognition



Amyloid beta (Aβ) and tau PET scans

SUVR values:

- **Aβ (38 regions)**
- **Tau (14 regions)**



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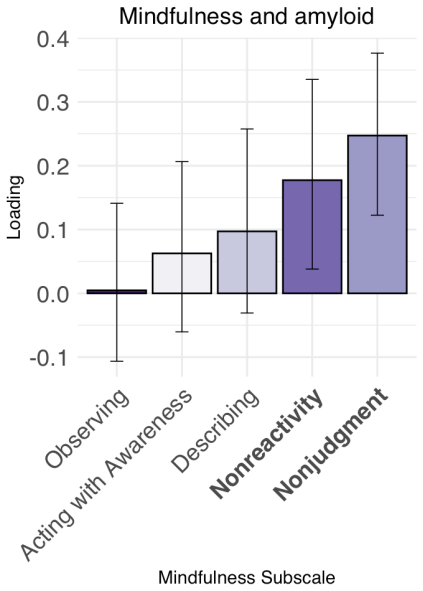
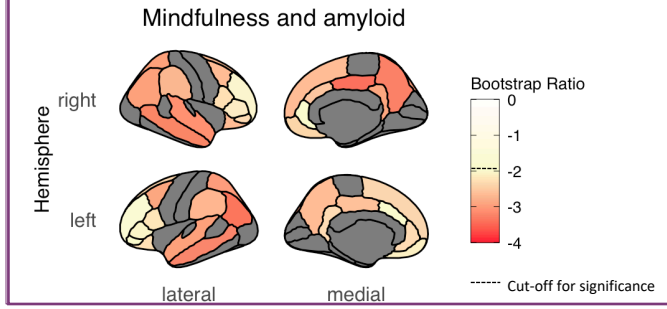
RESULTS

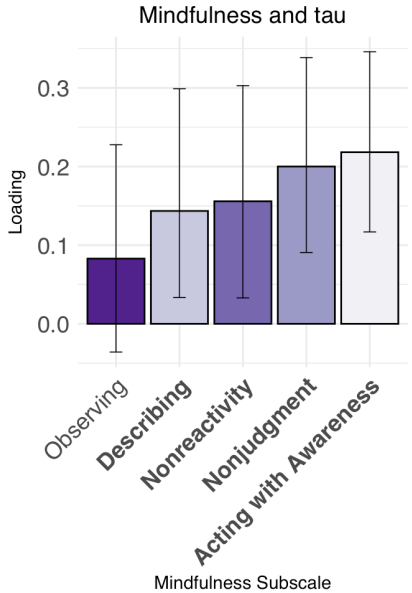
1. PLS between mindfulness and Aβ



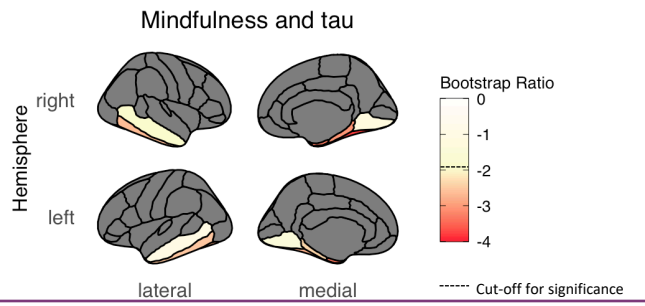
Higher levels of mindful nonjudgment and nonreactivity were associated with less Aβ deposition in bilateral temporoparietal and frontal cortices (p = .003)



2. PLS between mindfulness and tau



Higher levels of mindful acting with awareness, nonjudgment, nonreactivity, and describing were related to less tau deposition in bilateral medial and lateral temporal regions (p = .006)



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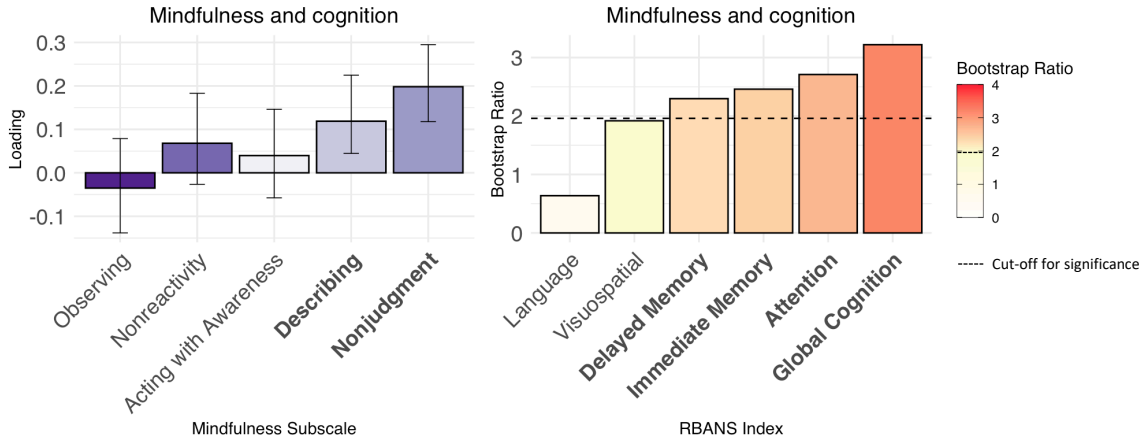
RESULTS

3. PLS between mindfulness and cognition



Higher levels of mindful nonjudgment and describing were associated with better performance on measures of global cognition, attention, and immediate and delayed memory (p = .002)

Supplementary analyses

Relationships between mindfulness and Aβ, tau, and cognition remained significant when including additional psychological (depression, anxiety, stress, perseverative thinking and personality traits) and demographic (age, sex, education, APOE status) variables in analyses

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CONCLUSIONS

- Higher trait mindfulness is associated with less Aβ and tau pathology and better cognition in preclinical AD
- Distinct combinations of mindfulness facets were differentially related to each of the AD markers
- Mindful nonjudgment, or a tendency to not judge one's own thoughts and feelings, was related to all three AD markers (Aβ, tau, and cognition)
- In addition to its other health benefits, mindfulness may also represent a potential psychological protective factor for AD
- This study provides empirical support for ongoing international studies of mindfulness interventions in early AD, and suggests that mindful nonjudgment may be a particularly important target for AD prevention

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