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Key Takeaway: Current alcohol consumption was associated with neuropsychiatric symptoms but not with CSF AD biomarkers.

Background

- High alcohol consumption has been associated with increased dementia risk. Moderate alcohol consumption has been associated with lower dementia risk (1)
- Evidence linking alcohol exposure to AD pathology remains inconsistent. Some studies have suggested links between alcohol consumption and AD biomarkers (2).
- Overall, the influence of alcohol consumption on AD pathology and clinical phenotype remains unclear.
- We investigated the association between alcohol consumption, clinical phenotype and CSF AD biomarkers.

Methods

Cross-sectional analysis of 217 patients from specialized memory clinic cohort

Alcohol exposure classification (current vs past or never consumption)

Clinical phenotype assessment
(24 items, Fisher's test)

CSF AD biomarkers with Elecsys immunoassays Roche®
(Aβ42, t-tau, p-tau181, and p-tau/Aβ42 ratio)

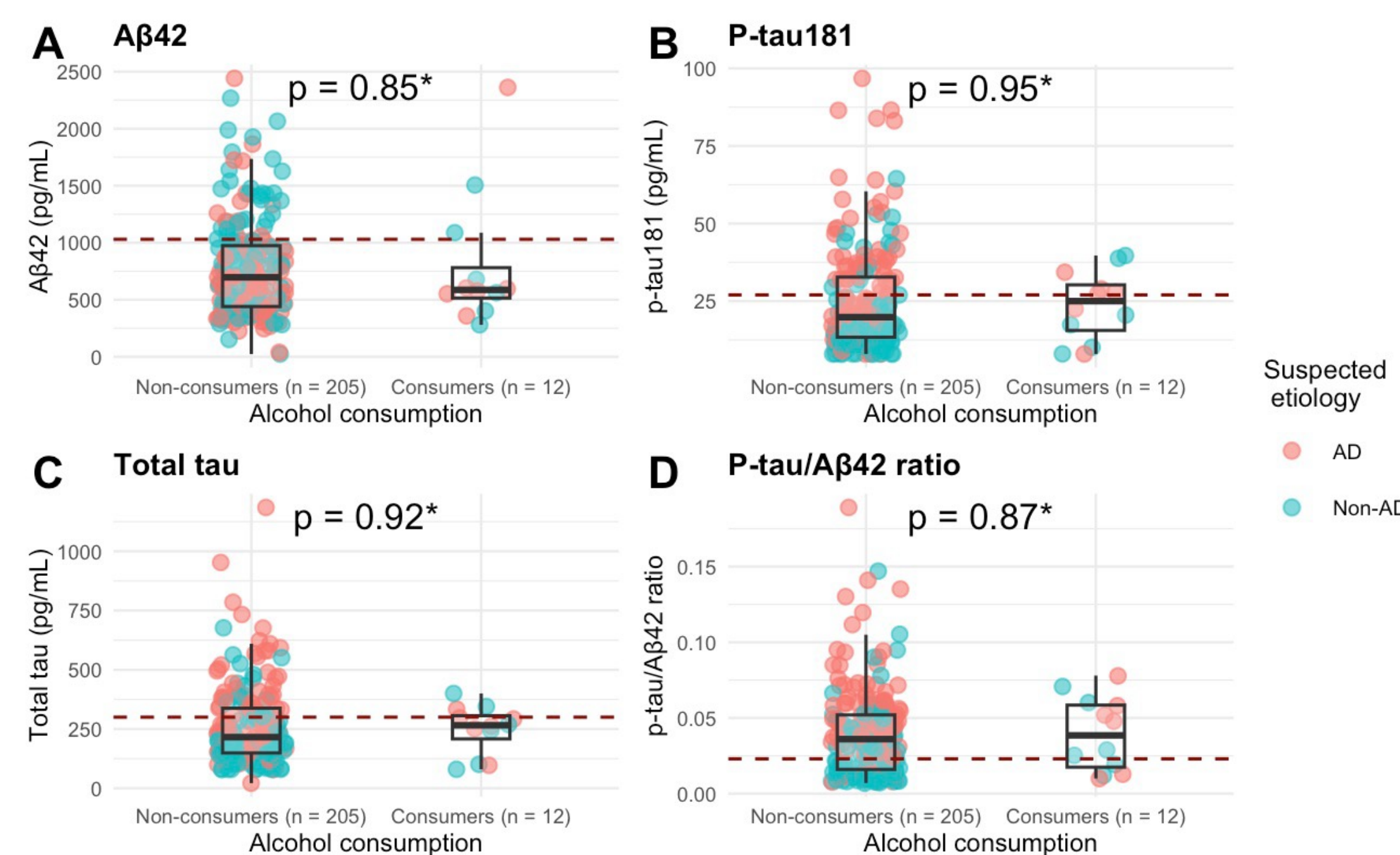
Exploratory logistic regression analysis (adjusted for age and sex)

Adjusted regression models (age, sex, initial diagnostic category AD vs non-AD)

Results

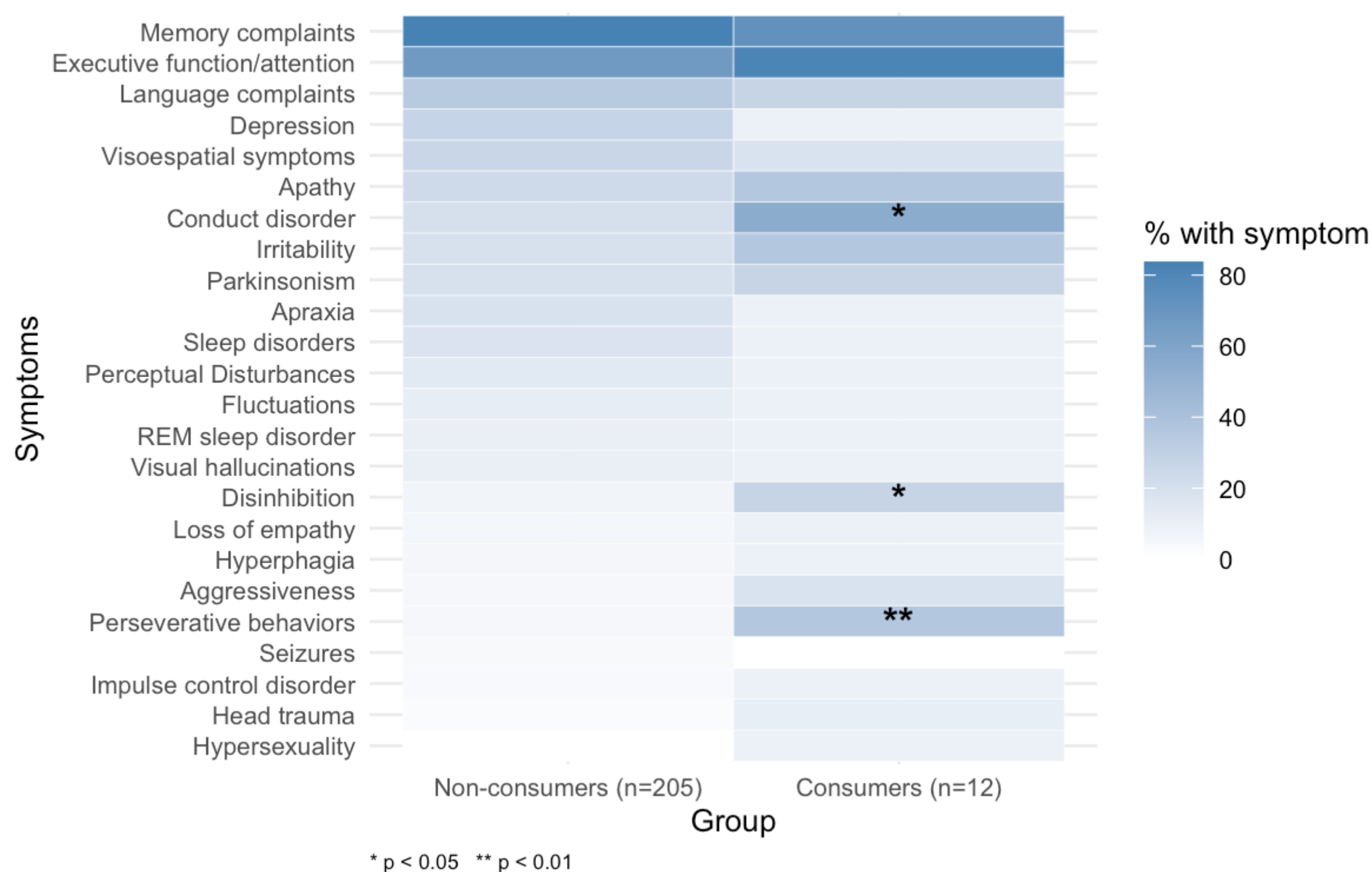
- Current consumers differed from past/never consumers in sex distribution (83% men in consumers vs 38% in non-consumers), but not in age, education or MMSE.
- Alcohol consumption was not associated with differences in CSF Aβ42, t-tau, p-tau, or p-tau/Aβ42 ratio levels in adjusted models (Figure 1).
- Patients with current alcohol consumption exhibited a distinct clinical phenotype, characterized by a higher frequency of neuropsychiatric symptoms (Figure 2).
- In exploratory analyses adjusted for age and sex, alcohol consumption remained associated with conduct disorders (OR ≈ 8.6, p = 0.005) and perseverative behaviors (OR ≈ 4.4, p = 0.024).

Figure 1. AD CSF biomarkers according to alcohol consumption



Dashed lines indicate cut-off values for Aβ42 (1030 pg/mL), p-tau181 (27 pg/mL), t-tau (300 pg/mL) and the p-tau/Aβ42 ratio 0.023. P-values correspond to linear regression models adjusted for age, sex, and suspected etiology

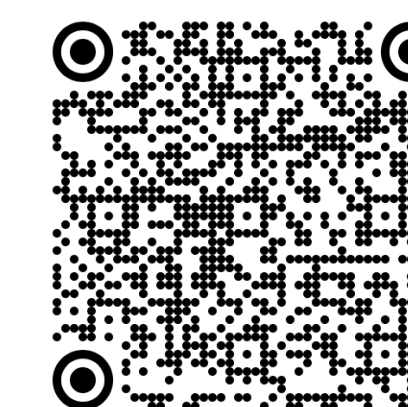
Figure 2. Frequency of symptoms according to alcohol consumption



Conclusions

- Alcohol consumption was associated with a distinct neuropsychiatric phenotype.
- No association was found between alcohol consumption and AD CSF biomarkers.
- Clinical presentation may be modulated by alcohol exposure independently of AD pathology.
- Limitations of this research include low exposure to alcohol consumption.

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References

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- Drouka A et al. Associations of moderate alcohol intake with cerebrospinal fluid biomarkers of Alzheimer's disease: data from the ALBION study. Eur J Nutr. 2025;64:142