

Associations between alpha peak frequency and cognitive function among rural-dwelling Chinese older adults: A population-based study

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Alterations in EEG-derived alpha peak frequency-related parameters are associated with poor cognitive function and can be a biomarker for clinical staging of the cognitive continuum in older adults.				
INTRODUCTION	METHODS	RESULTS	CONCLUSIONS	REFERENCES
- Older people with Alzheimer's disease (AD) slow alpha rhythms in resting-state electroencephalogram (rsEEG). - Alpha peak frequency-related parameters have the potential to screen for cognitive impairment, providing a non-invasive and convenient new method for the early identification of AD patients.	1941 participants (MIND-China cohort), age ≥60 3-minute rsEEG, last 1-minute of the occipital-parietal alpha rhythm analyzed. - The rsEEG parameters of alpha peak frequency: NCL, MOF, CDα, and As. - Statistical analysis: logistic and linear regression models, receiver operating characteristic (ROC) curves.	- NCL and MOF were significantly associated with MCI, and showed significant correlations with MMSE, memory, verbal fluency, and executive function. - Associations with AD were observed for CDα and As, and CDα and As showed significant associations with plasma P-tau217 and GFAP. - Alpha peak frequency-related parameters in combination with demographic data showed excellent performance in distinguishing AD, with area under the curve being 0.803.	- Alpha peak frequency-related parameters show differences in the AD continuum and have been confirmed to have significant correlations with cognitive domains and plasma biomarker. - Alpha peak frequency-related parameters in combination with demographic data enables robust AD classification. - Alterations in EEG-derived alpha peak frequency-related parameters can be a biomarker for clinical staging of the cognitive continuum in older adults.	[1] Zhao M et al. J Cereb Blood Flow Metab. 2024. Association between electroencephalogram alpha-band oscillations and executive and processing functions in patients with cerebral small vessel diseases. [2] López ME et al. Geroscience. 2020. A multivariate model of time to conversion from mild cognitive impairment to Alzheimer's disease. [3] Cecchetti G et al. Eur J Neurol. 2024. Analysis of individual alpha frequency in a large cohort from a tertiary memory center. CONTACT Anran Yao Shandong Provincial Hospital, Shandong First Medical University 13406780209@163.com ALZHEIMER'S ASSOCIATION 