

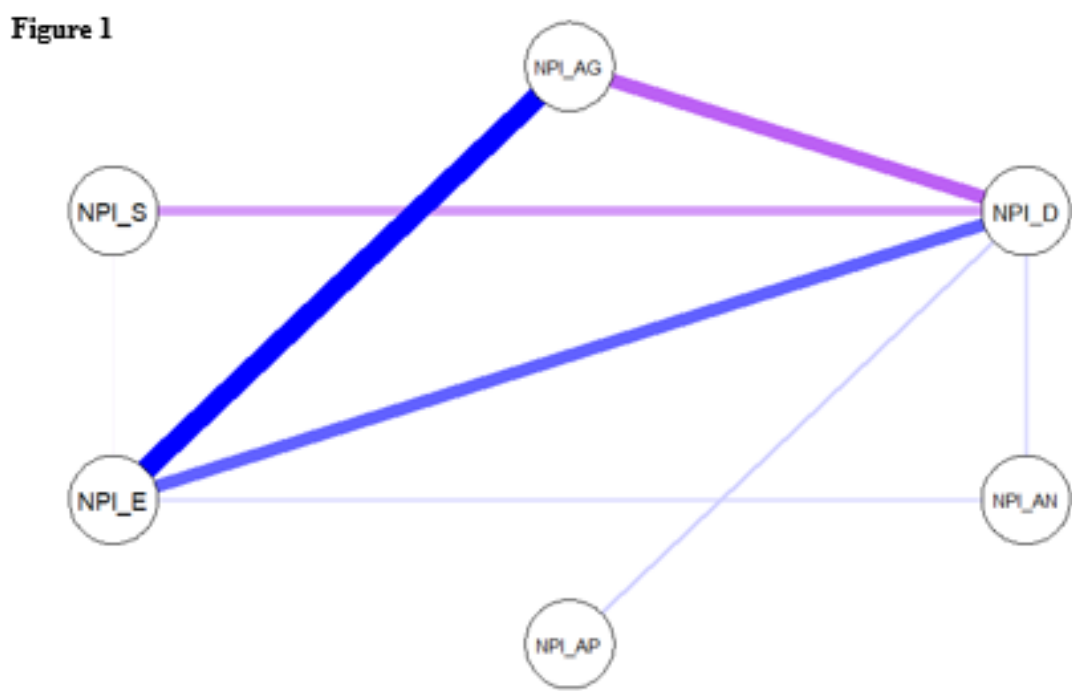
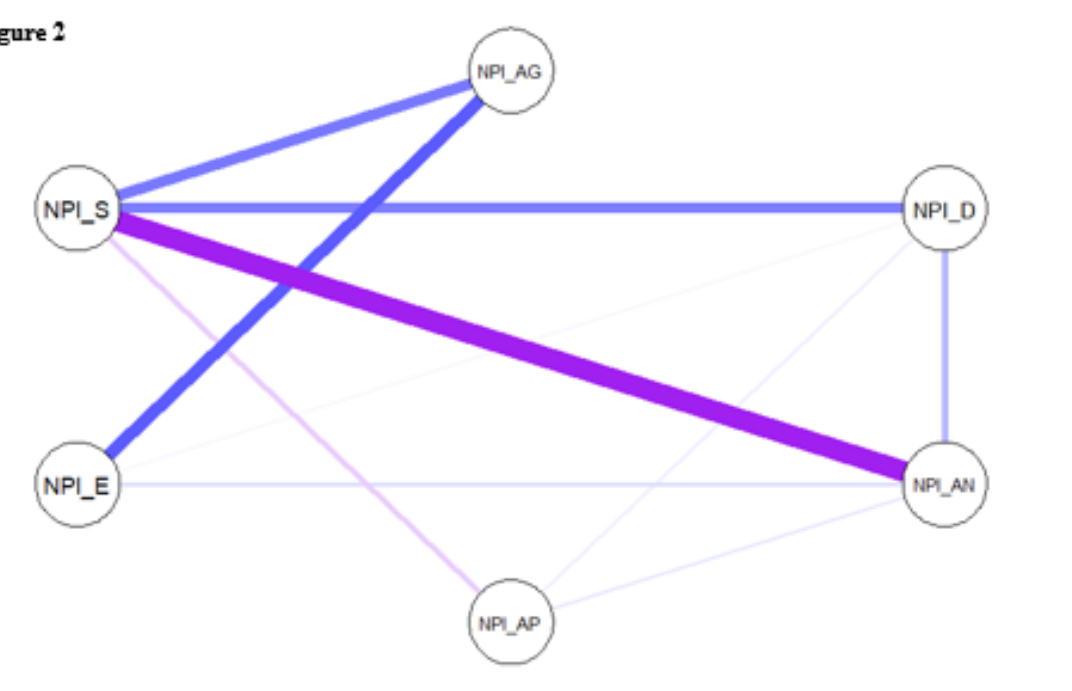
WHEN COGNITIVE AGE AND BRAIN AGE DIVERGE: DISTINCT NEUROPSYCHIATRIC SYMPTOM NETWORKS IN OLDER ADULTS

Poster
#0754

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Take away messages: (1) Cognitive ageing and brain ageing may diverge in older adults. (2) Different ageing discrepancy profiles are linked to distinct neuropsychiatric symptom networks. (3) Depression and sleep disturbance emerged as profile-specific core symptoms.

INTRODUCTION		METHODS	RESULTS	IMPLICATIONS
Cognitive ageing and brain ageing do not always progress in parallel in older adults. Such discrepancies may reflect heterogeneous neurobiological and psychological profiles, yet their associations with patterns of neuropsychiatric symptoms remain poorly understood.		❖ COGNITIVE AGE MODEL ❖ Training features:126 features derived from cognitive assessments. ❖ Training algorithm: Random Forest regression ❖ Training sample: 3,130 cognitively normal older adults from a population-based, cross-sectional survey (Hong Kong Mental Morbidity Survey for Older Persons). ▪ BRAIN AGE MODEL ❖ Training features: T1-weighted magnetic resonance imaging (T1W_MRI) ❖ Pre-trained model: the DeepBrainNet ▪ Neuropsychiatric symptoms were assessed using the Chinese Neuropsychiatric Inventory (CNPI).	▪ Subgroups: ○ BC group: brain age ≥ 0.5 SD older than cognitive age ○ CB group: cognitive age ≥ 0.5 SD older than brain age ▪ Different core symptoms across groups: Depression was the core symptom in the BC group, while sleep disturbance was the core symptom in the CB group. ▪ Adequate stability for strength centrality: CS-C values supported acceptable stability for strength centrality in both networks (BC = 0.525; CB = 0.558). ▪ Significant network differences between groups: Network comparison tests showed significant differences in overall network structure (M = 15.06, p = 0.01, BH-corrected).	Cognitive–brain ageing mismatch may index distinct resilience phenotypes in late life. → BC profile: preserved cognition despite older brain age, indicating higher cognitive reserve / cognitive resilience, with depression as the central neuropsychiatric vulnerability. → CB profile: older cognitive age despite relatively younger brain age, indicating reduced cognitive resilience, with sleep disturbance as the central neuropsychiatric vulnerability. A resilience-informed approach may improve precision in late-life neuropsychiatric care.
IMPLICATIONS				FIGURES
▪ To whether older adults with mismatched cognitive and brain ageing process, exhibit distinct neuropsychiatric symptom networks, ▪ To identify core neuropsychiatric symptoms associated with different ageing discrepancy profiles.				Figure 1  Figure 1. BC group symptom network Figure 2  Figure 2. CB group symptom network