



Clinicopathologic Features of Neurodegenerative Disease in Suicide Decedents: A Case Series and Systematic Literature Review

Dror Shir, MD; Anas Eligenidi, MD; Christian Lachner, MD; Neill R. Graff-Radford, MD; Gregory S. Day, MD
Department of Neurology, Mayo Clinic, Jacksonville

BACKGROUND

Population studies show increased suicide risk in patients with neurodegenerative diseases. The individual-level clinicopathologic features that confer vulnerability remain poorly characterized.

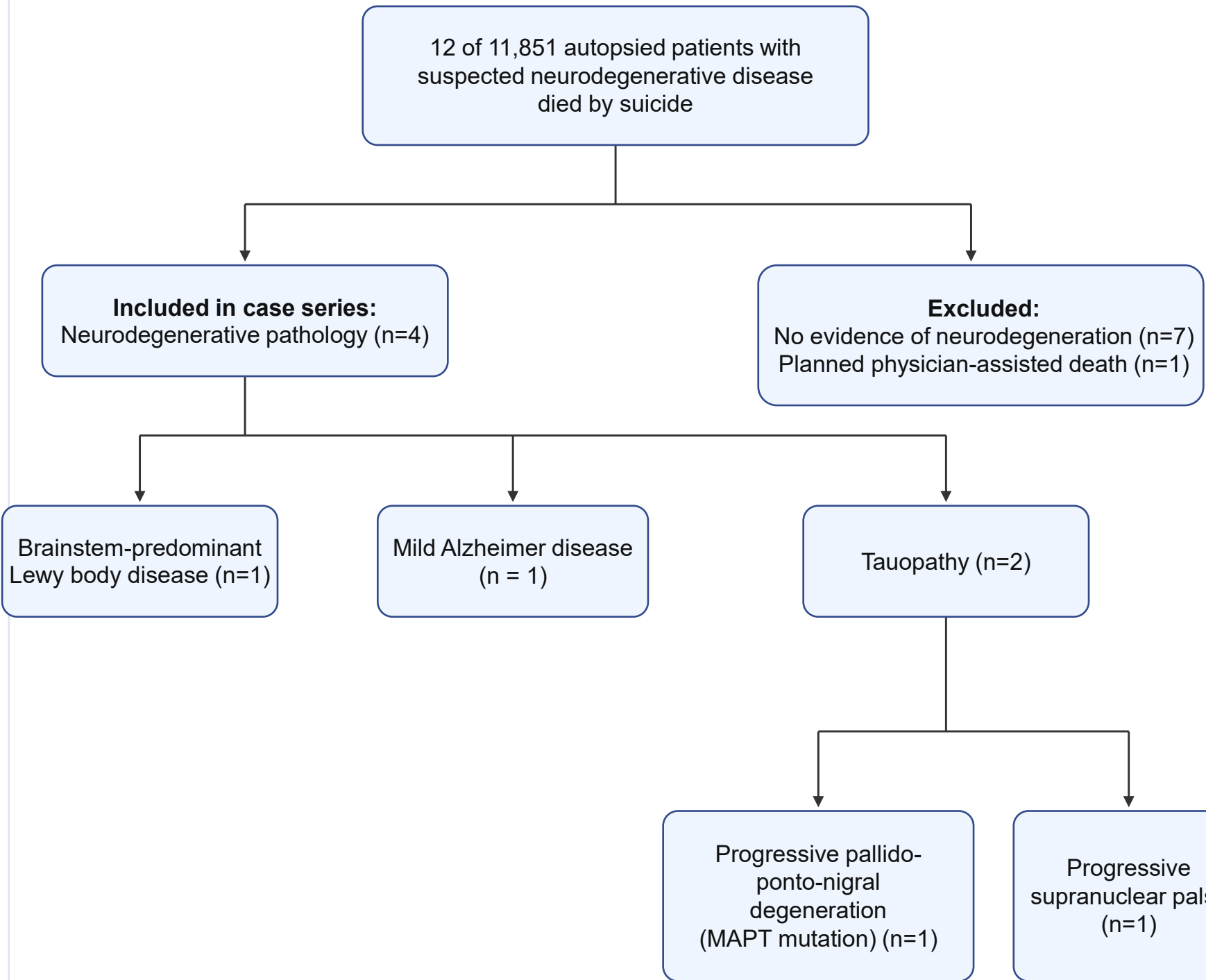
OBJECTIVES

Describe clinical features, cognitive and neuropsychiatric profiles, and neuropathologic findings in suicide decedents with neurodegenerative disease.

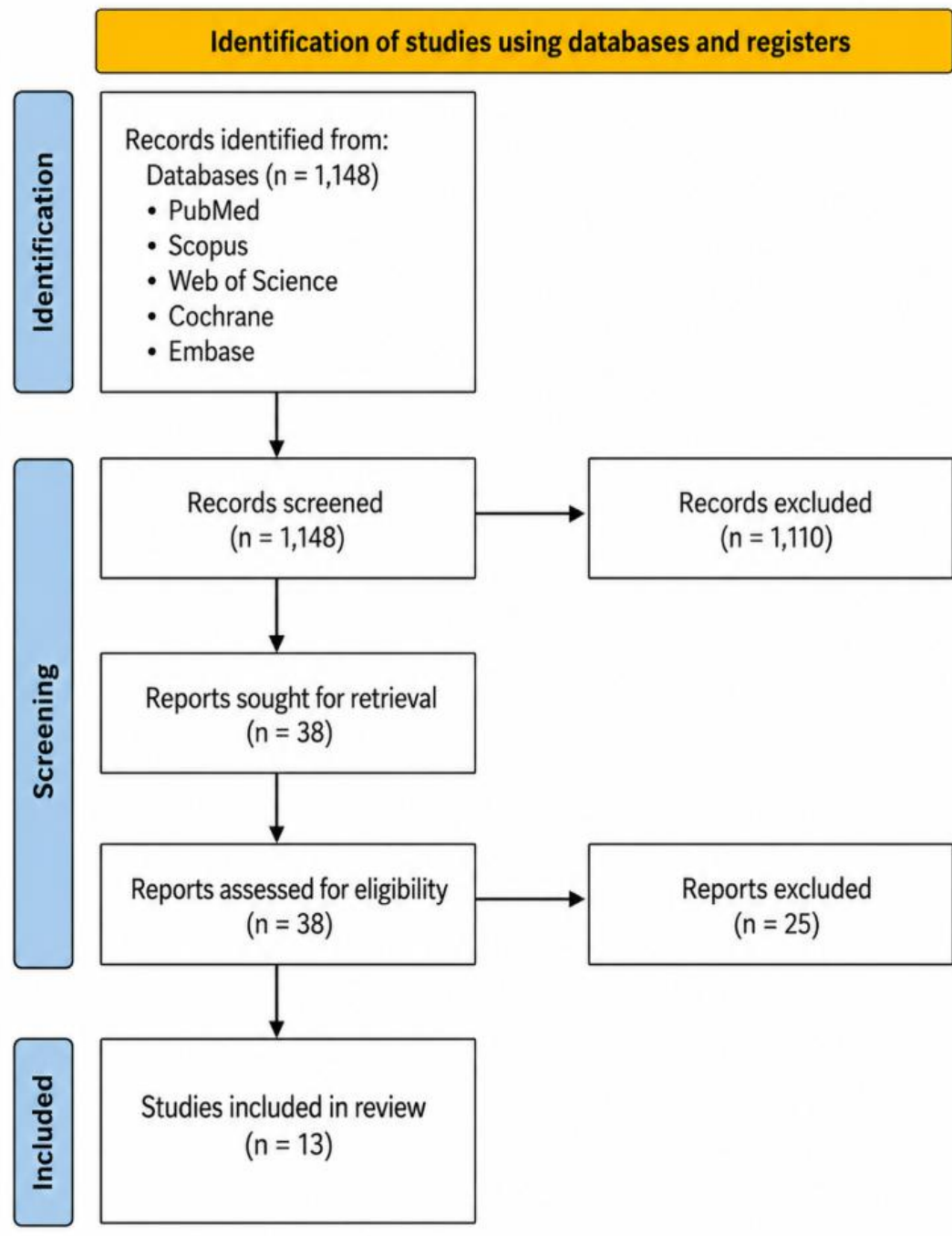
METHODS

- Case series + systematic literature review:
- Retrospective search of decedents within the Mayo Clinic Brain Bank who died by suicide. Cases without neuropathologic evidence of neurodegenerative disease were excluded.
 - Systematic review of PubMed and Embase for articles reporting on patients with neurocognitive syndromes thought to be secondary to a neurodegenerative etiology who completed suicide.
 - Descriptive analyses; case reports and observational studies.

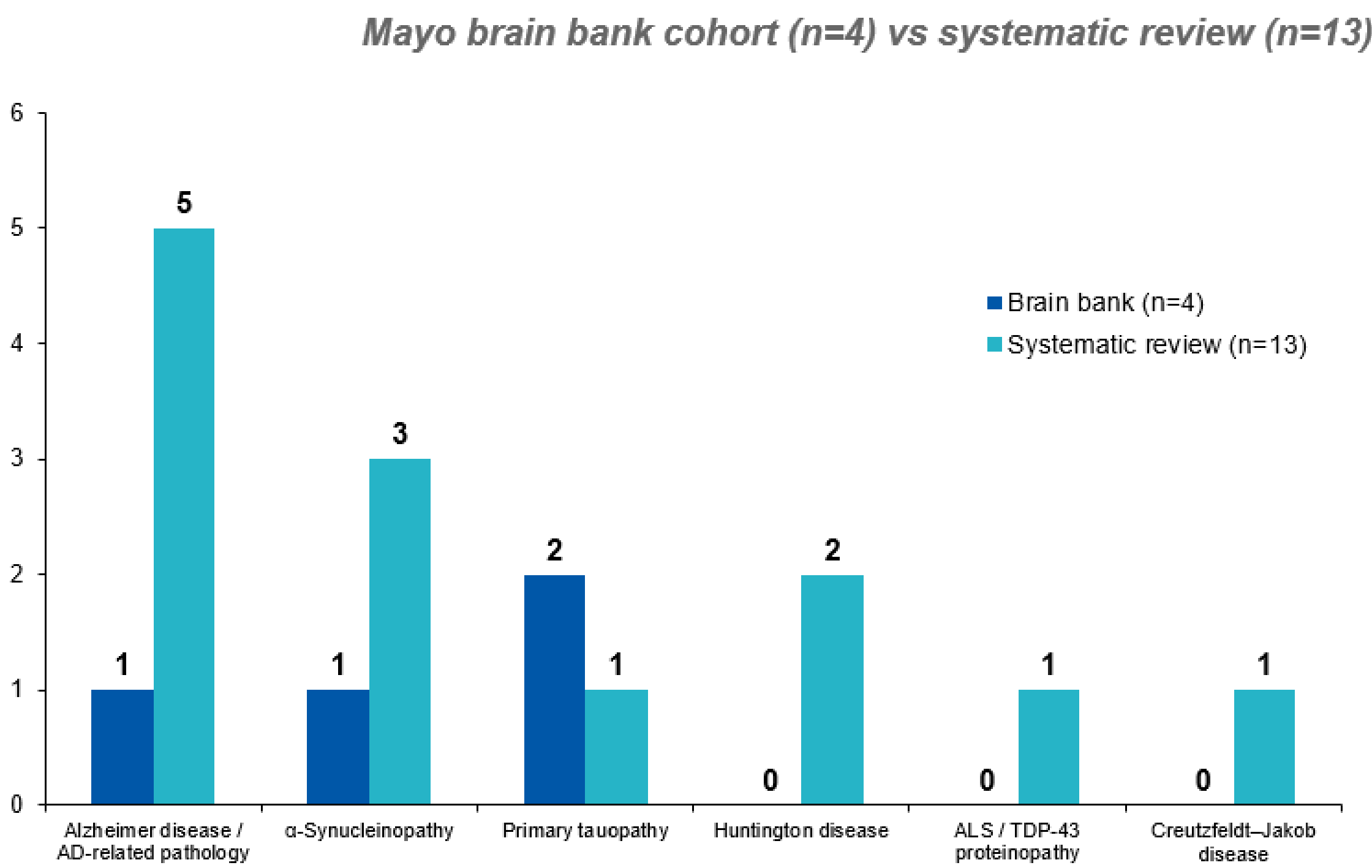
MAYO CLINIC BRAIN BANK CASE IDENTIFICATION



SYSTEMATIC REVIEW PRISMA FLOWCHART



NEUROPATHOLOGIC DIAGNOSES



RESULTS

Feature	Brain Bank cases (n=4)	Systematic review cases (n=13)
Male sex	3 (75%)	11 (85%)
Age range	44–79	30–92
Time to death from symptom onset	3–4 months to 5 years	2 months to 17 years
Motor symptoms	3 (75%)	5 (38%)
Executive dysfunction	4 (100%)	Not uniformly reported
Psychiatric symptoms/history	4 (100%)	8 (62%)
Preserved insight	2 (50%)	6 (46%)
AD / AD-related pathology	1 (25%)	7 (54%)
Lewy body / α-synuclein pathology	1 (25%)	3 (23%)
Primary tauopathy	2 (50%)	1 (8%)
Other pathology	0	4 (31%)‡

Recurring features across cases included motor symptoms, executive dysfunction, psychiatric symptoms/history, and preserved insight.

CONCLUSIONS

Suicide in patients with symptomatic neurodegenerative disease was uncommon but occurred across diverse neuropathologic substrates. Risk was not confined to a single diagnosis, disease stage, or degree of pathologic burden.

Recurring features included motor disability, neuropsychiatric/behavioral change, preserved or partial insight, and dysexecutive impairment.

Clinical implication: risk assessment should include judgment, impulsivity, executive dysfunction, functional loss, and access to lethal means.

REFERENCES

1. Erlangsen et al. JAMA. 2020;323:444–454. 2. Allothman et al. JAMA Neurol. 2022;79:1148–1154. 3. Günak et al. JAMA Psychiatry. 2021;78:659–666. 4. Desai et al. Ageing Res Rev. 2024;100:102445. 5. Chen et al. JAMA Psychiatry. 2021;78:293–301. 6. Oh et al. JNNP. 2021;92:528–533.