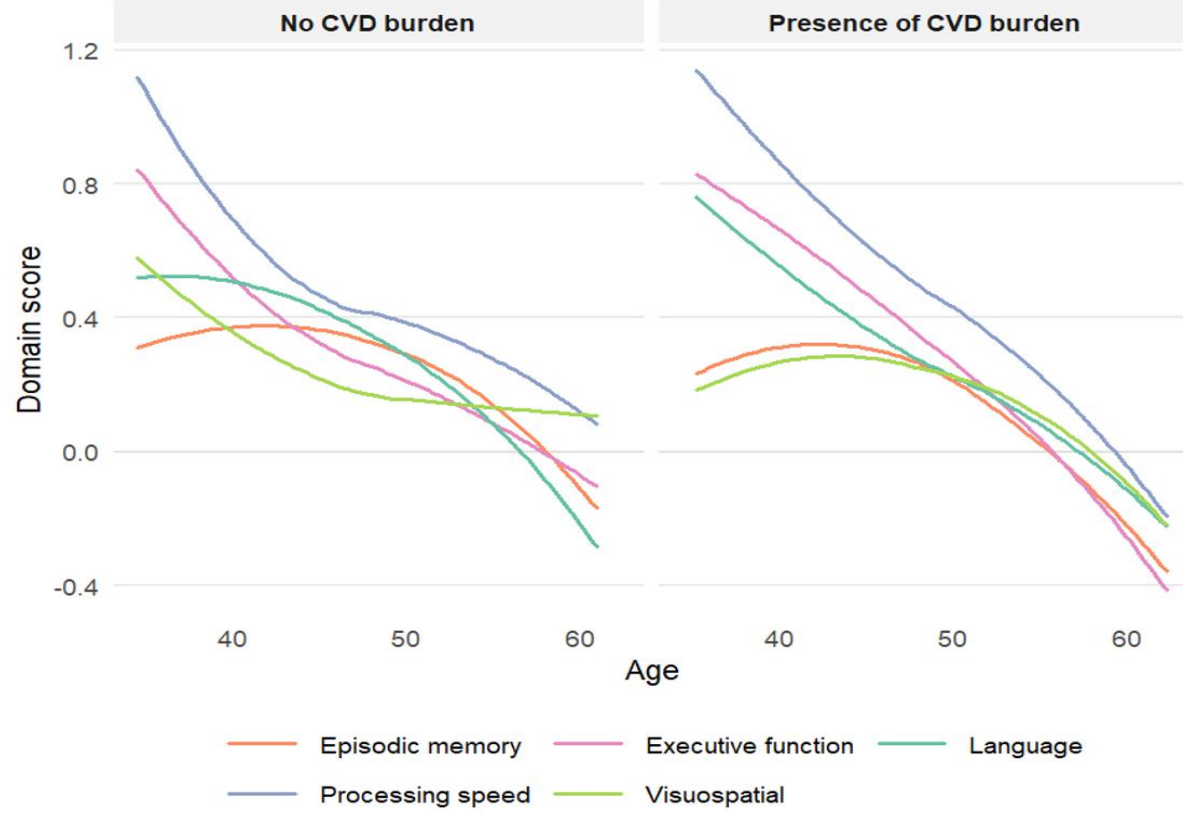


Cerebrovascular Burden And Risk In Midlife:
Evidence From The Singaporean CHARM Cohort

P1-8573

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Midlife vascular pathology is common and associated with domain-specific cognitive differences, adverse metabolic profiles, frailty, poor sleep quality and age-dependent biomarker changes

INTRODUCTION	METHODS	REFERENCES									
The "Asian Dementia Phenomenon": Cerebrovascular disease (CVD) is a major driver of cognitive outcomes in Asia (Lam et al, 2021; Vipin et al,) The Midlife Gap: While VRF and CVD rise during midlife (Gottesman et al, 2017), their immediate impact on working-age adults (30–59) remains poorly understood. Objective: Examine how CVD burden and VRF presence associate with cognitive, lifestyle, and biomarker outcomes using the unique Singaporean CHARM (Cerebrovascular Health, Adult Learning, Resilience and Mechanisms) cohort of employed adults.	Participants: N = 607 (Leow et al., 2024) 67.5% female; - mean age:49.97±6.50yrs; - Mean education:16.24±2.66yrs Measures: CVD burden: modified Fazekas ≥5 VRF Presence: Self-reported or clinical markers meeting the criteria: - History of hyperlipidaemia, hypertension, or diabetes - Total cholesterol ≥ 5.1mmol/L - Systolic BP≥ 140mmHg - HbA1c ≥ 7.1% Statistical Analyses, (p< 0.05): Age Trends: LOESS curves to visualize cognitive trajectories. Associations: ANCOVA adjusted for sex, education, and age (centered at 50). - Age-related interactions: Type III sums of squares; logistic regressions for odds ratios	CVD Burden Present: 47.4% VRF Present: 20.3% <table><tr><th>Vascular Profile</th><th>Associated Cognitive Deficits</th><th>Main Clinical & Biomarker Associations (Adjusted for age, sex and years of education)</th></tr><tr><td>CVD Burden</td><td>Episodic memory, Visuospatial ability</td><td>Poorer sleep quality (β=-0.82,OR= 0.91)</td></tr><tr><td>VRF Present</td><td>Executive function, Processing speed, Visuospatial ability</td><td> - Higher frailty (β=0.09,OR=1.44), - Higher BMI (β=1.55,OR=1.12), - Higher LDL (β=0.57,OR=2.42), - Higher triglycerides (β=0.19,OR=2.20); - Poorer sleep quality (β=0.51) - lower CDR-SOB (β=-0.06,OR=0.56) Significant interactions with age observed for: - LDL (β=-0.03), - Amyloid-β40 (β=0.47) - Glial fibrillary acidic protein (β=0.81). </td></tr></table> No CVD burden Presence of CVD burden  CVD burden demonstrated earlier and steeper declines in cognitive performance across age. Lam, B.Y.K., Yiu, B., Ampil, E. <i>et al.</i> High burden of cerebral white matter lesion in 9 Asian cities. <i>Sci Rep</i> 11, 11587 (2021). https://doi.org/10.1038/s41598-021-90746-x Gottesman RF, Schneider ALC, Zhou Y, et al. Association Between Midlife Vascular Risk Factors and Estimated Brain Amyloid Deposition. <i>JAMA</i>. 2017;317(14):1443–1450. doi:10.1001/jama.2017.3090 Leow, Y.J., Wang, J.D.J., Vipin, A. <i>et al.</i> Biomarkers and Cognition Study, Singapore (BIOCIS): Protocol, Study Design, and Preliminary Findings. <i>J Prev Alzheimers Dis</i> 11, 1093–1105 (2024). https://doi.org/10.14283/jpad.2024.89 Vipin, A., Satish, V., Saffari, S.E. <i>et al.</i> Dementia in Southeast Asia: influence of onset-type, education, and cerebrovascular disease. <i>Alz Res Therapy</i> 13, 195 (2021). https://doi.org/10.1186/s13195-021-00936-y	Vascular Profile	Associated Cognitive Deficits	Main Clinical & Biomarker Associations (Adjusted for age, sex and years of education)	CVD Burden	Episodic memory, Visuospatial ability	Poorer sleep quality (β=-0.82,OR= 0.91)	VRF Present	Executive function, Processing speed, Visuospatial ability	- Higher frailty (β=0.09,OR=1.44), - Higher BMI (β=1.55,OR=1.12), - Higher LDL (β=0.57,OR=2.42), - Higher triglycerides (β=0.19,OR=2.20); - Poorer sleep quality (β=0.51) - lower CDR-SOB (β=-0.06,OR=0.56) Significant interactions with age observed for: - LDL (β=-0.03), - Amyloid-β40 (β=0.47) - Glial fibrillary acidic protein (β=0.81).
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CONCLUSION	CONTACT										
Midlife vascular pathology is common and associated with domain-specific cognitive differences, adverse metabolic profiles, frailty, poor sleep quality and age-dependent biomarker changes, highlighting a potential window for early prevention.	LinkedIn:  Email: kiirtaara.aravindhan@ntu.edu.sg ALZHEIMER'S ASSOCIATION AAIC>26										