

What is the relationship between ethnicity and dementia? Evidence from neuroimaging in a diverse Memory Clinic population



South London and Maudsley 
NHS Foundation Trust

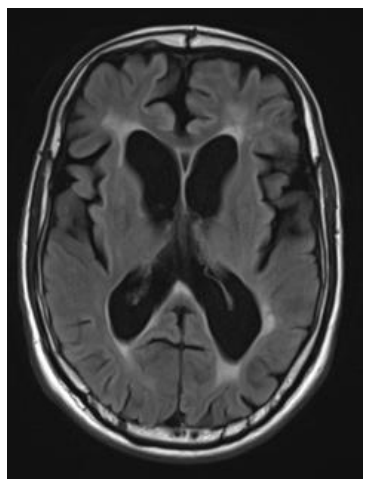
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BACKGROUND

- Cardiovascular disease (CVD)¹
- White matter hyperintensities (WMHs) on brain imaging²
- Risk of dementia Asian and Black vs. White people³



- Does ethnicity modify the relationship between WMHs, CVD, and dementia diagnosis in a cross-sectional sample of people attending a real-world, diverse, memory clinic in South London?

RESULTS

Table 1: Sample demographics

Characteristic	Sample (n = 4,479)	Dementia (n = 2,517)
Mean age in years (SD)	73.10 (10.86)	77.56 (7.71)
Female (%)	2597 (57.98)	1462 (58.01)
White (%)	2616 (58.41)	1535 (61.00)
Black (%)	929 (20.74)	507 (20.14)
Asian (%)	460 (10.27)	226 (9.00)
Other (%)	308 (6.88)	174 (6.91)
Unknown (%)	166 (3.71)	75 (3.00)
Mean IMD score (SD)	22.96 (10.30)	22.43 (10.50)
Hypertension (%)	1852 (41.35)	1117 (44.38)
Cerebrovascular accident (%)	1045 (23.33)	601 (23.88)
Diabetes mellitus (%)	2078 (46.39)	1127 (44.78)
Transient ischaemic attack (%)	375 (8.37)	208 (8.26)
Heart failure (%)	302 (6.74)	206 (8.18)
Ischaemic heart disease (%)	371 (8.28)	221 (8.78)
Atrial fibrillation (%)	350 (7.81)	229 (9.10)
Coronary arteriosclerosis (%)	178 (3.97)	95 (3.77)
Mean total CVD score (SD)	1.63 (10.25)	1.71 (1.26)
Mean global WMH volume (mm ³) (SD)	13.48 (8.05)	15.59 (8.45)

Table 2: Multivariable logistic regression results *White reference group

All-cause dementia	Black*	Asian*	CVD score	WMH volume
Odds Ratio (95% CI)	0.98 (0.64-1.51)	0.60 (0.36-0.94)	1.50 (1.29-1.75)	1.08 (1.05-1.11)

Table 3: Interaction test results

	Likelihood ratio test	Df	χ ²	P-value
Ethnicity*WMH	4	5.87	0.21	
Ethnicity*CVD score	4	10.72	0.03	

Figure 1: distribution of mean WMH and mean CVD score across diagnostic groups and ethnicity categories

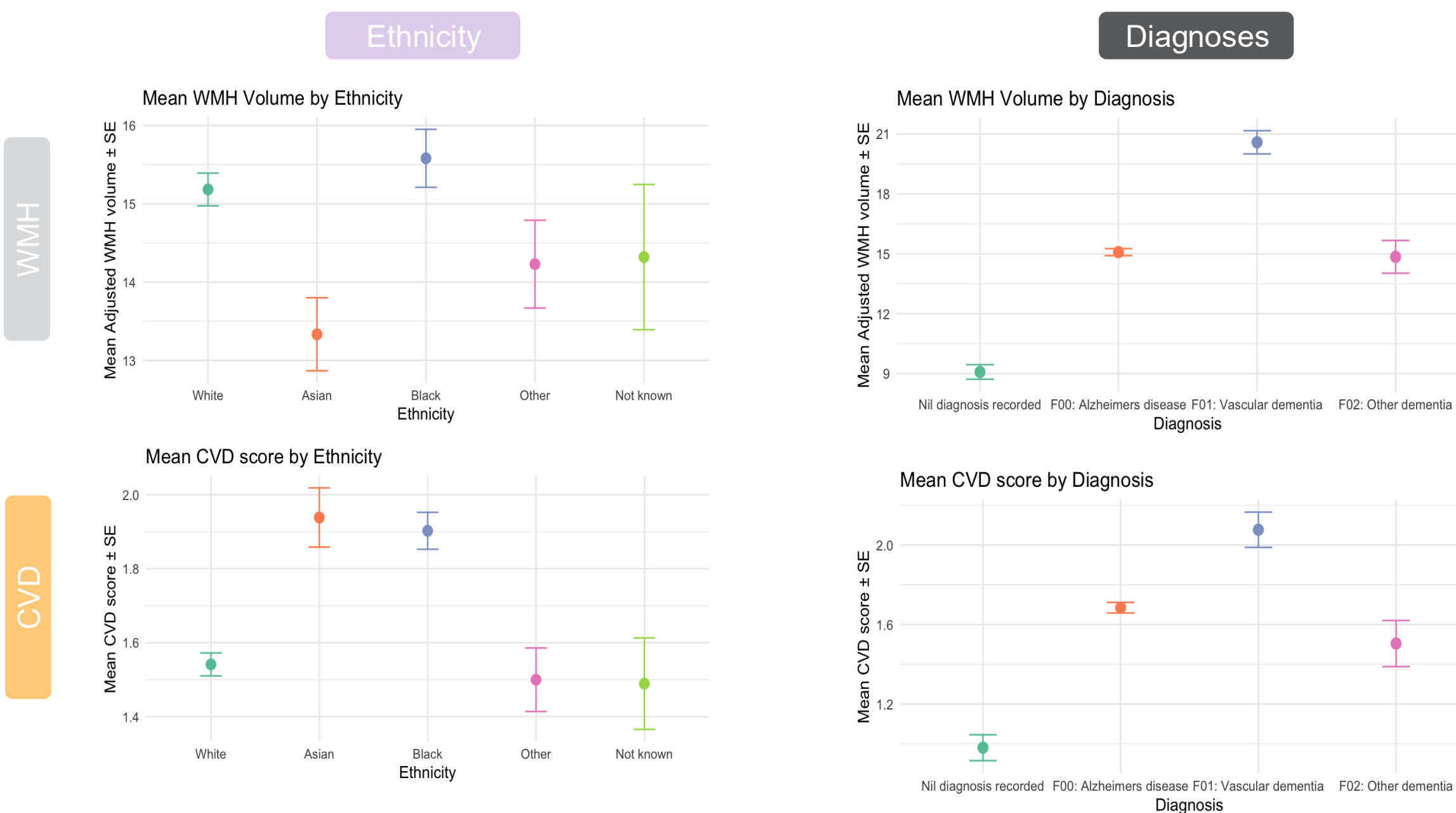
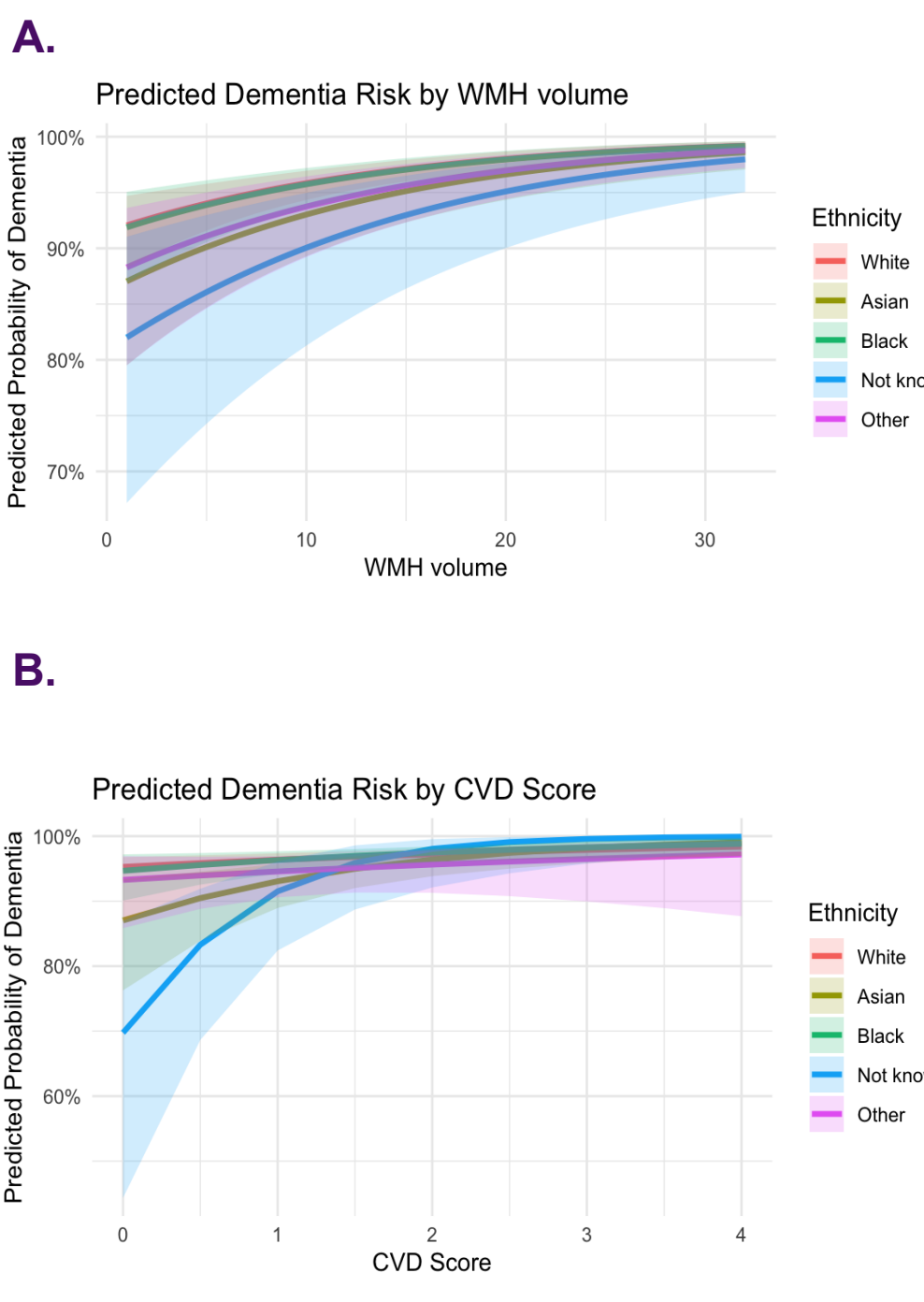
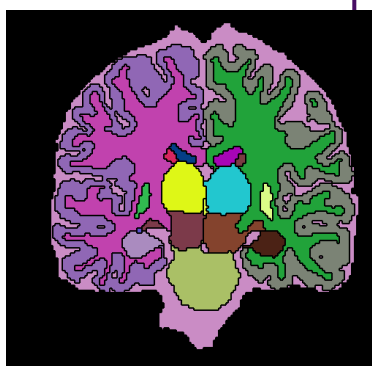


Figure 2: predicted probabilities of dementia by ethnicity and A. WMH, no interaction B. CVD score, with interaction



METHODS

- T2-weighted brain MRIs from the South London and Maudsley Image Bank
- >60 years referred to memory clinics
- Global WMH volume adjusted for intracranial volume extracted from WMH-SynthSeg⁴
- Eight risk factors = CVD score (Table 1)
- Multivariable logistic regression:
 - Dementia ~ ethnicity + WMH + CVD + age + sex + scanner + IMD
 - Dementia ~ ethnicity * WMH + CVD + age + sex + scanner + IMD
 - Dementia ~ ethnicity * CVD + WMH + age + sex + scanner + IMD



CONCLUSIONS

- No difference in odds of dementia in Black people, and lower odds of dementia in Asian people, compared to White people
- Modification by ethnicity for odds of dementia with CVD but not WMH
- Selection bias may play a role: only people attending memory services with a scan available in South London

- No increased odds of dementia in Black or Asian people compared to White people in this sample
- WMHs and CVD associated with increased odds of dementia
- No modification by ethnicity of WMHs ↔ dementia, but ethnicity may modify CVD ↔ dementia

CONTACT



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