

SUPPLEMENTARY TABLES

Supplementary Table 1. A summary of the Shapiro-Wilk tests results for each WMH feature (PVH, DWMH and Fazekas Total) in CN and MCI participants.

SW test <i>p</i> -value	PVH	DWMH	Fazekas Total
CN	1.33E-15	3.99E-10	1.71E-09
MCI	4.84E-14	1.05E-07	1.22E-06

As all the WMH features data distribution were non-normal as shown above, a Spearman correlation was utilised for the subsequent analysis. Abbreviations: CN: Cognitively Normal; MCI: Mild Cognitive Impairment.

Supplementary Table 2. A summary of the frequency of normal vs. non-normal Shapiro-Wilk tests results for each neuropsychological assessment.

SW test frequency table		Number of neuropsychological assessments
CN	$P < 0.05$	14
	$P > 0.05$	2
MCI	$P < 0.05$	15
	$P > 0.05$	1

Normality was tested for the rest of the neuropsychological assessments with a summary shown above, with the majority of the assessments showing non-normal distributions. A correlation analysis was done which is shown in Table 3. Abbreviations: CN: Cognitively Normal; MCI: Mild Cognitive Impairment.

Supplementary Table 3. Summary of amnestic vs. non-amnestic MCI.

SW test frequency table		Number of participants
MCI	Amnestic	73 (33.6%)
	Non-amnestic	144 (66.4%)

The number of amnestic MCI participants is lower than the current literature, likely because BIOCIS is a community-dwelling population.

Supplementary Table 4. A summary of correlations between specific White Matter Hyperintensities features and different neuropsychological assessment by cognitive group.

Domains assessed	Neuropsychological assessment	Cognitively normal			Mild cognitive impairment		
		Fazekas total	PVH	DWMH	Fazekas Total	PVH	DWMH
		Spearman Rho adjusted	Spearman Rho adjusted	Spearman Rho adjusted	Spearman Rho adjusted	Spearman Rho adjusted	Spearman Rho adjusted
Global	VCAT	0.155	NS	0.179	0.215	0.232	0.183
Global	MoCA	NS	NS	NS	0.265	0.164	0.279
Learning and memory	ROCF Immediate	0.236	NS	0.274	NS	0.146	NS
Learning and memory	FCSRT Learning	0.183	NS	0.212	0.172	0.225	NS
Learning and memory	RAVLT	NS	NS	0.141	0.165	NS	0.162
Processing speed	Colour Trails A	0.214	0.148	0.237	0.152	0.187	NS

Processing speed	Symbol Digit Modalities Test	0.294	0.225	0.294	0.278	0.223	0.281
Executive function	Colour Trail B	0.241	0.179	0.252	0.200	0.236	0.147
Executive function[#], processing speed	Trial Making Test B	0.250	0.173	0.261	0.164	0.178	0.135
Attention	WAIS Digit span Forward	0.193	0.144	0.198	NS	NS	NS
Working memory	WAIS Digit span Backwards	0.169	0.171	0.147	0.191	NS	0.191
Language	Semantic fluency	0.220	0.150	0.220	NS	NS	NS
Visuospatial	WAIS Block design	0.242	0.165	0.255	0.174	0.214	NS
Executive function	TOP-J B	NS	NS	NS	NS	NS	NS

Only correlations where $p < 0.05$ were included. For tests that assessed various domains of cognition, the dominant domain was indicated by [#]. All reported values were corrected Rho values ($p < 0.05$) through modulation. Abbreviations: VCAT: Visual Cognitive Assessment Test; MoCA: Montreal Cognitive Assessment; ROCF Immediate: Rey–Osterrieth Complex Figure; FCSRT Learning: Free and Cued Selective Reminding Test (FCSRT) Learning; RAVLT: Rey Auditory Verbal Learning Test (RAVLT); WMS-IV Logical Memory: Wechsler Memory Scale (WMS)-IV Logical Memory; TOP-J: Test of Practical Judgement; NS: Non-significant.