Supplementary material

Classification and characterization of periventricular and deep white matter hyperintensities on MRI: a study in older adults

Ludovica Griffanti[1], Mark Jenkinson[1], Sana Suri[2], Enikő Zsoldos[2], Abda Mahmood[2], Nicola Filippini[2], Claire E Sexton[1], Anya Topiwala[2], Charlotte Allan[2], Mika Kivimäki[3], Archana Singh-Manoux[3,4], Klaus P. Ebmeier[2], Clare E. Mackay[1,2], Giovanna Zamboni[1,5]

[1] Centre for the functional MRI of the Brain (FMRIB), University of Oxford, UK
[2] Department of Psychiatry, University of Oxford, UK
[3] Department of Epidemiology and Public Health, University College London, London, UK
[4] INSERM, U 1018, Hopital PAUL Brousse, Villejuif, France.
[5] Dipartimento di Scienze Biomediche, Metaboliche e Neuroscienze, Università di Modena e Reggio Emilia, Italy;

Supplementary figures

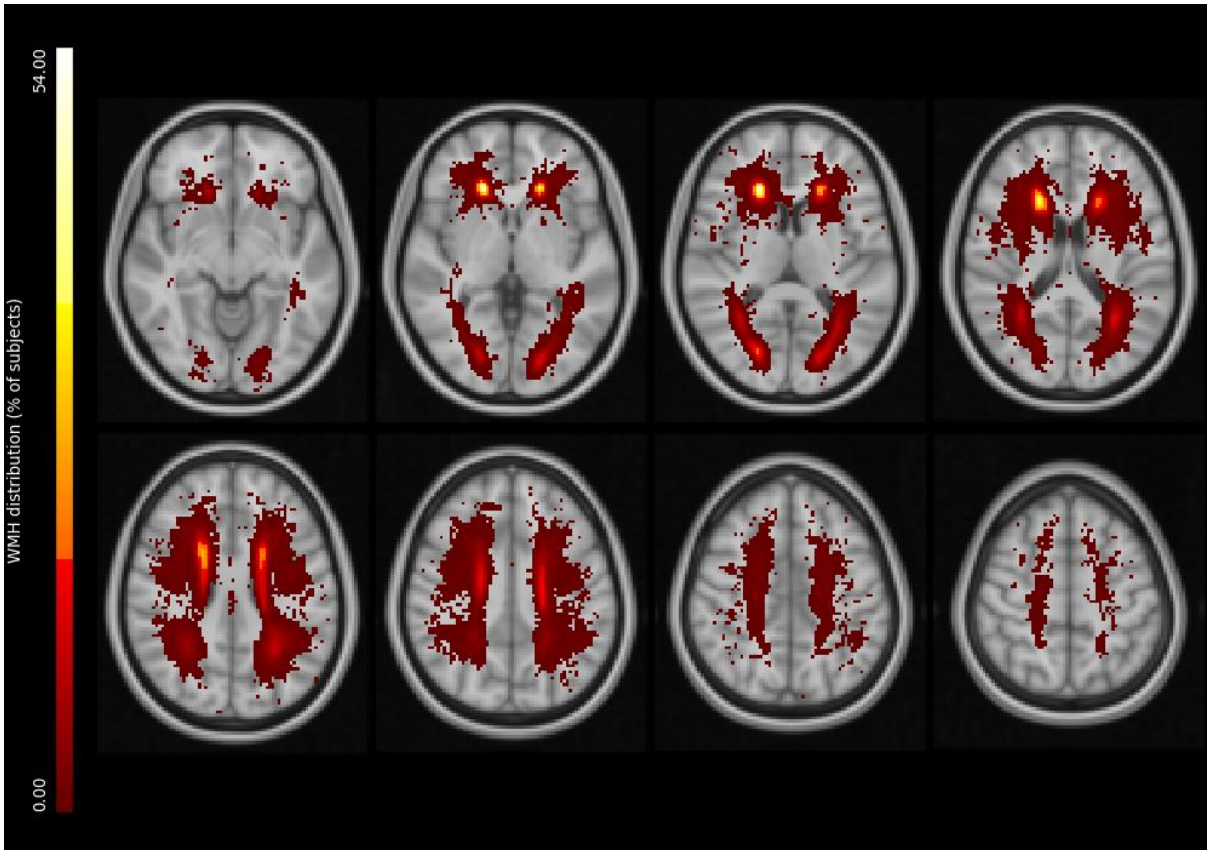

Figure S1. WMH spatial distribution in the sample. The map shows the percentage of subjects with WMH for each location in the MNI space. This map is for illustrative purposes only, since all the analyses reported in this study were performed in single-subject space.

Supplementary tables

Table S1. Comparison of currently used criteria to classify PWMH and DWMH. Pair-wise comparisons on estimated volumes (post-hoc analysis after ANOVA for repeated measures).

Pair-wise comparison		Mean Difference	Std. Error	Sig. p-value (Bonferroni corrected)
P(1)	P(2)	-0.009	0.002	0.001*
P(1)	J(3)	0.189	0.006	<0.001*
P(1)	P(3)	0.42	0.008	<0.001*
P(1)	P(4)	0.016	0.002	<0.001*
P(2)	J(3)	0.198	0.005	<0.001*
P(2)	P(3)	0.429	0.009	<0.001*
P(2)	P(4)	0.025	0.002	<0.001*
J(3)	P(3)	0.231	0.013	<0.001*
J(3)	P(4)	-0.173	0.005	<0.001*
P(3)	P(4)	-0.404	0.009	<0.001*
D(1)	D(2)	0.023	0.01	0.116
D(1)	D(3)	0.16	0.011	<0.001*
D(1)	D(4)	-0.095	0.01	<0.001*
D(2)	D(3)	0.137	0.005	<0.001*
D(2)	D(4)	-0.118	0.007	<0.001*
D(3)	D(4)	-0.254	0.011	<0.001*

* Significant difference p<0.05. Legend: P = PWMH volume; J = JWMH volume; D = DWMH volume; 1-4: criteria described in the methods section.

Table S2. Association between WMH and mood disorders.

VOLUME	Group comparison[#]		Correlation[§] with CES-D	
	t-value	p-value (2-tailed)	r-value	p-value (2-tailed)
P(1)	-0.887	0.376	0.044	0.311
D(1)	0.942	0.347	-0.047	0.283
P(2)	-0.894	0.371	0.043	0.322
D(2)	0.117	0.907	-0.017	0.699
J(3)	-0.918	0.359	0.048	0.269
P(3)	-0.68	0.497	0.033	0.451
D(3)	0.472	0.637	-0.025	0.567
P(4)	-0.762	0.446	0.041	0.354
D(4)	-0.441	0.659	-0.002	0.972

[#] Independent 2-sample t-test between control and sub-threshold depression (CES-D > 10).

[§] Partial correlation controlling for age, sex and total brain volume. Legend: CES-D = Centre for Epidemiological Studies Depression Scale; P = PWMH volume; J = JWMH volume; D = DWMH volume; 1-4: criteria described in the methods section.