

1 Supplementary Materials

Table 1: Relationship between ACE subtests and WMH: Regression Model 1 with confluence as a predictor. QMIN-MC data^a.

Outcome variable	Predictor	Whole-brain WMH confluence					DWMH confluence					PWMH confluence				
		β	SD	t	pFDR	R ²	β	SD	t	pFDR	R ²	β	SD	t	pFDR	R ²
Total ACE	Intercept	77.81	7.45	10.44	<0.001***	0.09	89.79	7.06	12.72	<0.001***	0.07	77.35	7.43	10.41	<0.001***	0.10
	Age	-0.19	0.06	-3.04	0.005**		-0.32	0.06	-5.63	<0.001***		-0.18	0.06	-2.86	0.008**	
	Sex (male)	2.25	1.34	1.68	0.124		2.66	1.36	1.95	0.074		2.29	1.34	1.71	0.120	
	Confluence	-35.07	6.71	-5.23	<0.001***		-25.44	9.71	-2.62	0.016*		-31.68	5.83	-5.43	<0.001***	
Attention	Intracranial volume	0.00	0.00	1.51	0.167		0.00	0.00	1.02	0.361		0.00	0.00	1.46	0.177	
	Intercept	22.07	1.35	16.39	<0.001***		24.24	1.24	19.58	<0.001***		21.95	1.35	16.22	<0.001***	
	Age	-0.09	0.02	-5.11	<0.001***		-0.12	0.02	-7.45	<0.001***		-0.09	0.02	-5.00	<0.001***	
	Sex (male)	0.84	0.38	2.23	0.039*		0.96	0.38	2.52	0.020*		0.85	0.38	2.26	0.037*	
Memory	Confluence	-6.86	1.86	-3.69	<0.001***		-1.97	2.67	-0.74	0.511		-6.11	1.62	-3.77	<0.001***	
	Intracranial volume	0.44	0.19	2.31	0.034*		0.35	0.19	1.85	0.092		0.43	0.19	2.26	0.037*	
	Intercept	18.18	2.80	6.49	<0.001***	0.08	21.72	2.64	8.23	<0.001***	0.06	18.25	2.79	6.53	<0.001***	0.08
	Age	-0.07	0.02	-3.06	0.005**		-0.11	0.02	-5.25	<0.001***		-0.07	0.02	-3.00	0.005**	
Fluency	Sex (male)	0.77	0.50	1.53	0.163		0.87	0.51	1.71	0.120		0.79	0.50	1.58	0.151	
	Confluence	-11.78	2.53	-4.66	<0.001***		-11.00	3.63	-3.03	0.005**		-10.21	2.20	-4.64	<0.001***	
	Intracranial volume	0.00	0.00	0.94	0.397		0.00	0.00	0.60	0.594		0.00	0.00	0.87	0.434	
	Intercept	44.94	3.98	11.30	<0.001***	0.11	50.33	3.75	13.42	<0.001***	0.09	44.77	3.96	11.29	<0.001***	0.11
Language	Age	-0.17	0.03	-4.88	<0.001***		-0.22	0.03	-7.35	<0.001***		-0.16	0.03	-4.73	<0.001***	
	Sex (male)	1.05	0.72	1.45	0.178		1.23	0.73	1.69	0.123		1.07	0.72	1.48	0.173	
	Confluence	-16.33	3.60	-4.54	<0.001***		-12.64	5.16	-2.45	0.024*		-14.67	3.13	-4.69	<0.001***	
	Intracranial volume	0.00	0.00	0.05	0.970		-0.00	0.00	-0.35	0.762		0.00	0.00	0.00	0.999	
Visuospatial	Intercept	21.03	1.47	14.27	<0.001***		23.45	1.34	17.56	<0.001***		20.76	1.48	14.03	<0.001***	
	Age	0.04	0.02	1.84	0.092		0.00	0.02	0.19	0.865		0.04	0.02	2.02	0.064	
	Sex (male)	0.21	0.43	0.49	0.661		0.29	0.43	0.68	0.545		0.22	0.43	0.52	0.646	
	Confluence	-9.66	2.13	-4.54	<0.001***		-8.29	3.03	-2.74	0.011*		-8.88	1.85	-4.80	<0.001***	
Visuospatial	Intracranial volume	0.70	0.21	3.25	0.003**		0.62	0.22	2.91	0.007**		0.68	0.21	3.21	0.003**	
	Intercept	17.02	1.22	13.97	<0.001***		18.40	1.11	16.57	<0.001***		16.75	1.22	13.69	<0.001***	
	Age	-0.04	0.02	-2.58	0.017*		-0.06	0.01	-4.15	<0.001***		-0.04	0.02	-2.34	0.032*	
	Sex (male)	1.64	0.34	4.76	<0.001***		1.73	0.35	5.01	<0.001***		1.63	0.34	4.75	<0.001***	
Visuospatial	Confluence	-3.77	1.71	-2.21	0.041*		0.51	2.45	0.21	0.863		-3.86	1.48	-2.61	0.016*	
	Intracranial volume	0.22	0.17	1.30	0.231		0.16	0.17	0.94	0.397		0.22	0.17	1.31	0.227	

^a Predictors included in the model: WMH confluence, age, sex, total intracranial volume. *P*-values have been FDR-corrected for 90 tests, bold *p*-values are significant. Asterisks indicate significance levels: $p^* < 0.05$, $p^{**} < 0.01$, $p^{***} < 0.001$. No R^2 is available for Tobit regressions (attention, language and visuospatial abilities).

Table 2: Relationship between ACE subtests and WMH: Regression model 2 with confluence and volume as predictors. QMIN-MC data^a.

Outcome variable	Predictor	Whole-brain WMH Confluence					DWMH Confluence					PWMH Confluence				
		β	SD	t	<i>p</i> _{FDR}	<i>R</i> ²	β	SD	t	<i>p</i> _{FDR}	<i>R</i> ²	β	SD	t	<i>p</i> _{FDR}	<i>R</i> ²
Total ACE	Intercept	63.70	7.89	8.07	<0.001***	0.12	82.35	7.31	11.26	<0.001***	0.08	64.92	7.88	8.24	<0.001***	0.12
	Age	-0.06	0.07	-0.88	0.462		-0.25	0.06	-4.04	<0.001***		-0.07	0.07	-0.97	0.429	
	Sex (male)	1.78	1.33	1.34	0.272		2.43	1.35	1.80	0.145		2.04	1.33	1.54	0.210	
	Volume	-2.75	1.35	-2.04	0.093		-1.94	0.71	-2.72	0.022*		-3.04	1.69	-1.80	0.145	
	Confluence	-16.83	18.77	-0.90	0.462		5.88	20.88	0.28	0.811		-8.24	20.50	-0.40	0.741	
Attention	Volume*Confluence	13.13	5.16	2.54	0.031*		4.39	4.93	0.89	0.462		8.34	5.35	1.56	0.206	
	Intracranial volume	0.00	0.00	2.08	0.087		0.00	0.00	1.34	0.272		0.00	0.00	1.96	0.110	
	Intercept	18.83	1.46	12.86	<0.001***		22.73	1.30	17.53	<0.001***		19.21	1.46	13.14	<0.001***	
	Age	-0.06	0.02	-2.89	0.013*		-0.10	0.02	-5.95	<0.001***		-0.06	0.02	-3.04	0.008**	
	Sex (male)	0.72	0.37	1.94	0.112		0.91	0.38	2.43	0.040*		0.79	0.37	2.14	0.080	
Memory	Volume	-0.40	0.38	-1.05	0.392		-0.49	0.20	-2.44	0.039*		-0.67	0.47	-1.41	0.255	
	Confluence	-7.51	5.19	-1.45	0.246		5.14	5.98	0.86	0.469		-2.11	5.70	-0.37	0.754	
	Volume*Confluence	5.38	1.47	3.67	<0.001***		1.62	1.41	1.15	0.353		3.13	1.51	2.08	0.087	
	Intracranial volume	0.51	0.19	2.70	0.022*		0.40	0.19	2.09	0.087		0.50	0.19	2.60	0.027*	
	Intercept	12.82	2.96	4.33	<0.001***	0.11	19.59	2.74	7.14	<0.001***	0.07	13.80	2.95	4.67	<0.001***	0.11
Fluency	Age	-0.02	0.03	-0.88	0.462		-0.09	0.02	-3.99	<0.001***		-0.03	0.03	-1.13	0.358	
	Sex (male)	0.58	0.50	1.17	0.352		0.80	0.51	1.58	0.202		0.69	0.50	1.39	0.261	
	Volume	-0.62	0.51	-1.23	0.324		-0.51	0.27	-1.91	0.120		-0.28	0.63	-0.44	0.720	
	Confluence	-10.89	7.04	-1.55	0.208		-3.90	7.83	-0.50	0.690		-12.20	7.69	-1.59	0.202	
	Volume*Confluence	6.76	1.94	3.48	0.002**		1.91	1.85	1.03	0.400		6.33	2.01	3.14	0.006**	
Language	Intracranial volume	0.00	0.00	1.42	0.255		0.00	0.00	0.84	0.475		0.00	0.00	1.08	0.379	
	Intercept	37.54	4.21	8.92	<0.001***	0.13	46.14	3.88	11.89	<0.001***	0.11	38.02	4.20	9.05	<0.001***	0.13
	Age	-0.10	0.04	-2.61	0.027*		-0.18	0.03	-5.50	<0.001***		-0.10	0.04	-2.69	0.022*	
	Sex (male)	0.84	0.71	1.18	0.347		1.13	0.72	1.56	0.206		0.96	0.71	1.36	0.270	
	Volume	-1.96	0.72	-2.71	0.022*		-1.24	0.38	-3.28	0.004**		-2.11	0.90	-2.34	0.049*	
Visuospatial	Confluence	0.72	10.02	0.07	0.950		11.01	11.10	0.99	0.422		4.04	10.93	0.37	0.754	
	Volume*Confluence	4.86	2.76	1.76	0.155		0.43	2.62	0.16	0.891		2.74	2.87	0.96	0.437	
	Intracranial volume	0.00	0.00	0.67	0.584		-0.00	0.00	-0.02	0.980		0.00	0.00	0.61	0.614	
	Intercept	18.15	1.63	11.12	<0.001***		21.85	1.42	15.42	<0.001***		18.17	1.63	11.16	<0.001***	
	Age	0.07	0.02	3.29	0.004**		0.03	0.02	1.40	0.259		0.07	0.02	3.15	0.006**	
Visuospatial	Sex (male)	0.11	0.42	0.26	0.823		0.26	0.43	0.61	0.614		0.17	0.42	0.40	0.741	
	Volume	-0.70	0.43	-1.63	0.192		-0.72	0.23	-3.14	0.006**		-0.17	0.54	-0.32	0.784	
	Confluence	-5.30	5.96	-0.89	0.462		7.39	6.69	1.10	0.369		-10.42	6.51	-1.60	0.200	
	Volume*Confluence	3.50	1.65	2.12	0.081		-1.13	1.56	-0.72	0.552		4.13	1.71	2.42	0.040*	
	Intracranial volume	0.78	0.21	3.64	<0.001***		0.67	0.21	3.14	0.006**		0.71	0.22	3.27	0.004**	
Visuospatial	Intercept	14.38	1.33	10.84	<0.001***		17.20	1.17	14.66	<0.001***		14.42	1.32	10.93	<0.001***	
	Age	-0.01	0.02	-0.63	0.611		-0.05	0.02	-2.92	0.012*		-0.01	0.02	-0.58	0.635	
	Sex (male)	1.54	0.34	4.53	<0.001***		1.69	0.34	4.92	<0.001***		1.58	0.34	4.66	<0.001***	
	Volume	-0.58	0.34	-1.68	0.176		-0.38	0.18	-2.06	0.088		-0.81	0.43	-1.87	0.127	
	Confluence	-0.60	4.77	-0.13	0.915		6.21	5.35	1.16	0.352		2.57	5.24	0.49	0.690	
Visuospatial	Volume*Confluence	3.44	1.33	2.58	0.028*		1.10	1.26	0.87	0.463		1.87	1.38	1.35	0.270	
	Intracranial volume	0.29	0.17	1.72	0.163		0.20	0.17	1.15	0.353		0.30	0.17	1.75	0.157	

^a Predictors included in the model: WMH confluence, WMH volume, WMH volume × WMH confluence, age, sex, total intracranial volume. *P*-values have been FDR-corrected for 126 tests, bold *p*-values are significant. Asterisks indicate significance levels: * *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001. No *R*² is available for Tobit regressions (attention, language and visuospatial abilities).