

Unique Morphometric Features of the Cerebellum and Cerebellocerebral Structural Correlation Between Autism Spectrum Disorder and Schizophrenia

Supplementary Information

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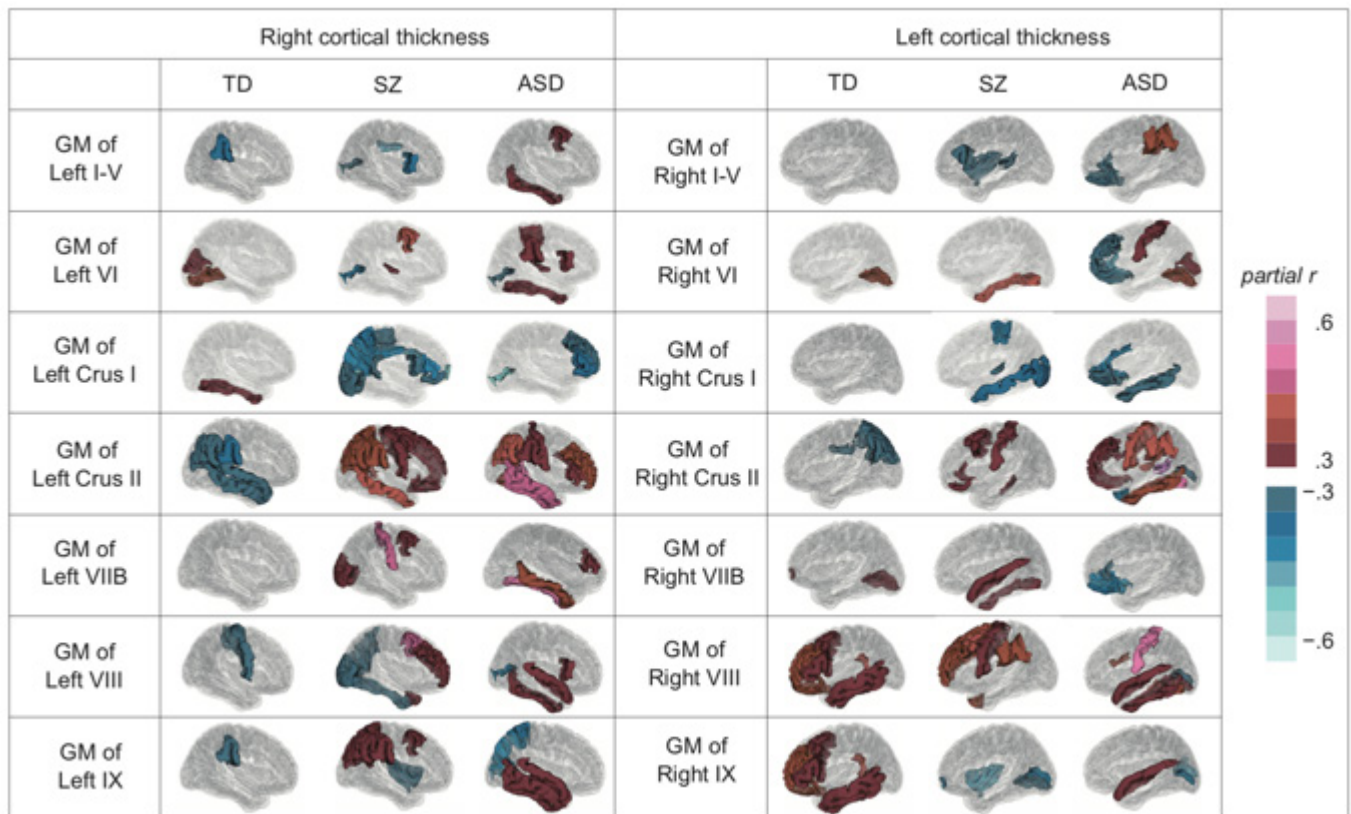


Figure S1. Structural correlations between the cerebellar lobular volumes and cerebral cortical thickness. Correlations with the absolute value of *partial r* higher than 0.3 are demonstrated in color maps. TD, typically developing; SZ, schizophrenia; ASD, autism spectrum disorder; GM, gray matter.

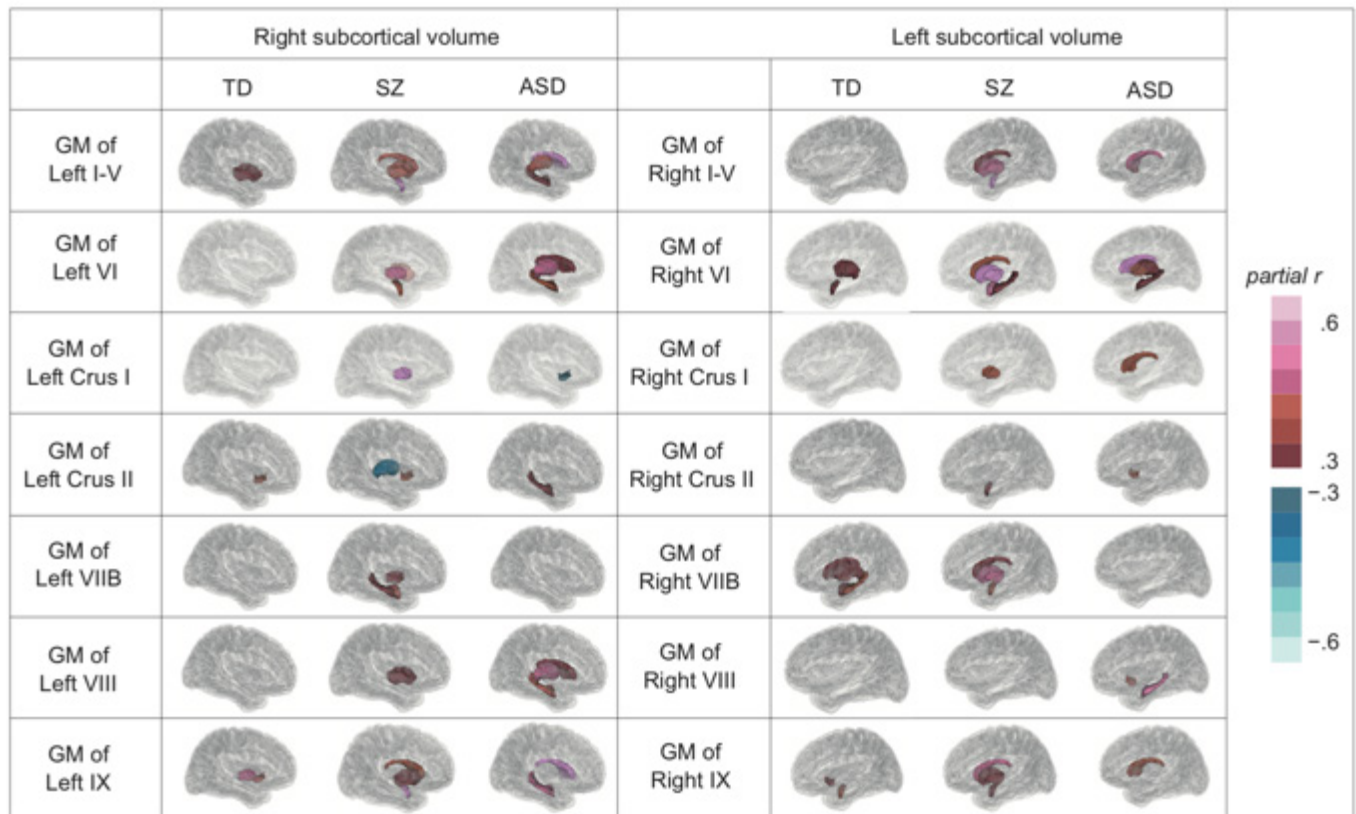


Figure S2. Structural correlations between the cerebellar lobular volumes and subcortical volumes. Correlations with the absolute value of *partial r* higher than 0.3 are demonstrated in color maps. TD, typically developing; SZ, schizophrenia; ASD, autism spectrum disorder; GM, gray matter.

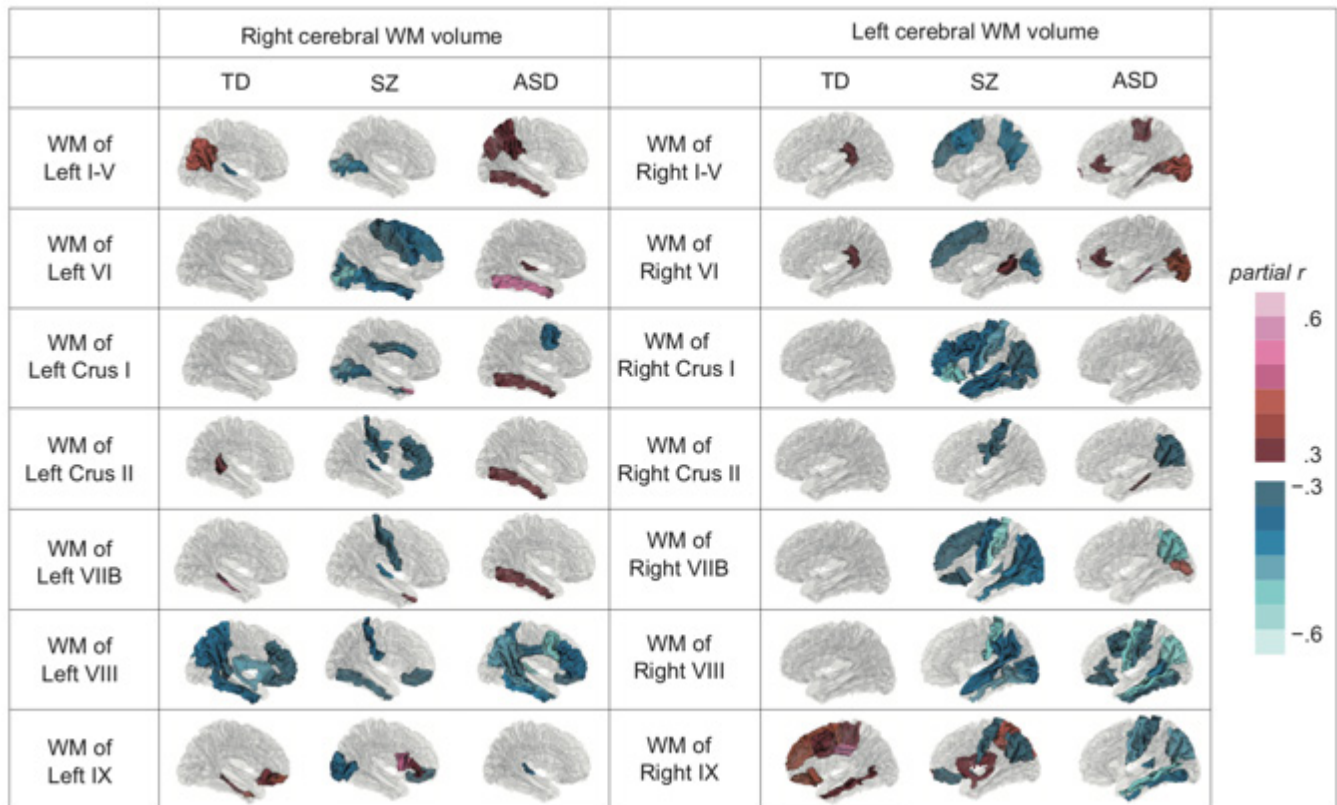


Figure S3. Structural correlations between the cerebellar lobular volumes and cerebral white matter volumes. Correlations with the absolute value of *partial r* higher than 0.3 are demonstrated in color maps. TD, typically developing; SZ, schizophrenia; ASD, autism spectrum disorder; WM, white matter.

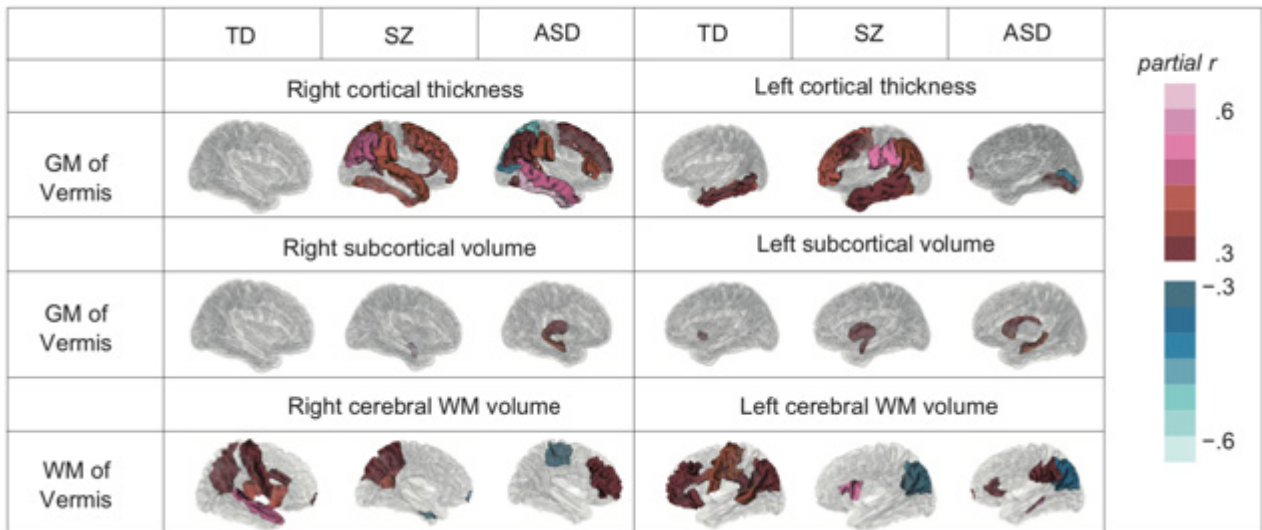


Figure S4. Structural correlations between the cerebellar vermal volumes and cerebral volumes.

Correlations with the absolute value of *partial r* higher than 0.3 are demonstrated in color maps. TD, typically developing; SZ, schizophrenia; ASD, autism spectrum disorder; GM, gray matter; WM, white matter.

Table S1. The statistical results of all cerebellar lobular volumes.

	TD	SZ	ASD	<i>p</i> -value [†]
GM of left I-V	7515 ± 119	7315 ± 157	7214 ± 149	.264
GM of right I-V	7591 ± 121	7486 ± 161	7371 ± 152	.527
GM of left VI	8006 ± 177	7600 ± 234	7866 ± 222	.388
GM of right VI	7706 ± 176	7522 ± 233	7493 ± 221	.703
GM of left Crus I	10516 ± 205	10407 ± 271	10098 ± 258	.443
GM of right Crus I	11524 ± 221	11299 ± 292	10552 ± 277	.024
GM of left Crus II	6159 ± 157	6304 ± 208	5764 ± 197	.141
GM of right Crus II	7016 ± 174	6805 ± 230	6585 ± 218	.303
GM of left VIIB	4428 ± 106	4337 ± 140	4291 ± 133	.412
GM of right VIIB	4459 ± 98	4543 ± 130	4244 ± 124	.220
GM of left VIII	8198 ± 131	8059 ± 174	8054 ± 165	.727
GM of right VIII	6300 ± 94	6262 ± 124	6207 ± 118	.827
GM of left IX	3277 ± 95	3027 ± 125	3203 ± 119	.285
GM of right IX	3255 ± 86	2965 ± 114	3235 ± 108	.106
GM of posterior vermis	4946 ± 76	4815 ± 101	4799 ± 96	.402
WM of left I-V	1673 ± 49	1745 ± 65	1851 ± 62	.087
WM of right I-V	1702 ± 49	1788 ± 65	1912 ± 62	.032
WM of left VI	1559 ± 61	1553 ± 80	1911 ± 76	<.001
WM of right VI	1576 ± 66	1722 ± 88	2045 ± 83	<.001
WM of left Crus I	2242 ± 97	2060 ± 129	2790 ± 122	<.001
WM of right Crus I	2819 ± 110	2551 ± 145	3397 ± 138	<.001
WM of left Crus II	1248 ± 66	1142 ± 87	1435 ± 83	.049
WM of right Crus II	1689 ± 91	1382 ± 120	1948 ± 114	.004
WM of left VIIB	950 ± 49	817 ± 65	996 ± 62	.123
WM of right VIIB	970 ± 43	817 ± 57	1089 ± 54	.003
WM of left VIII	1635 ± 62	1516 ± 82	1756 ± 78	.111
WM of right VIII	1262 ± 59	1158 ± 78	1421 ± 74	.052
WM of left IX	576 ± 34	437 ± 45	595 ± 42	.020
WM of right IX	612 ± 38	455 ± 50	632 ± 47	.020
WM of posterior vermis	752 ± 31	683 ± 42	792 ± 39	.165

TD, typically developing; SZ, schizophrenia; ASD, autism spectrum disorder; GM, gray matter; WM, white matter.

[†]*p*-values were uncorrected.

Table S2. The results of multiple regression analysis between cerebellar lobular volumes and ADI-R/PANSS subscale scores.

	ASD			SZ		
	Reciprocal social interaction	Communication	Repetitive & stereotyped behaviors	Positive symptoms	Negative symptoms	General psychopathology
WM of left I-V	.025	.044	.283	.023	.347	.085
WM of right I-V	.129	.096	.142	.124	.4536	.288
WM of left VI	.316	.322	.349	.416	.033	.064
WM of right VI	.323	.363	.479**	.527*	.208	.277
WM of left Crus I	.098	-.011	.097	.351	.195	.399
WM of right Crus I	.022	.134	.198	.346	.301	.266
WM of left Crus II	-.107	.040	.038	-.049	-.007	.092
WM of right Crus II	-.082	-.026	-.014	.228	-.009	.150
WM of left VIIB	-.186	-.085	-.058	.007	-.043	.073
WM of right VIIB	-.174	.090	.050	.037	.185	.190
WM of left VIII	.040	.227	.333	-.160	-.255	-.090
WM of right VIII	.104	.212	.348	.412	.320	.435*
WM of left IX	.163	.264	.395*	.335	.062	.188
WM of right IX	.078	.141	.260	.451*	.250	.242
WM of posterior vermis	.065	.051	.152	.049	-.250	-.094
GM of left I-V	.046	.140	.254	-.333	-.158	-.168
GM of right I-V	.056	.066	-.013	-.102	-.148	.026
GM of left VI	.214	.196	.051	-.378	-.280	-.301
GM of right VI	.202	.191	.154	-.200	-.168	-.113
GM of left Crus I	.300	.270	.291	-.341	-.032	-.038
GM of right Crus I	.220	.266	.411*	-.621**	-.105	-.308
GM of left Crus II	.248	.172	.023	-.217	-.215	-.266
GM of right Crus II	.300	.130	-.132	-.203	-.239	-.109
GM of left VIIB	.157	-.020	-.196	-.161	-.068	.040
GM of right VIIB	-.216	-.047	-.150	-.333	-.148	-.178
GM of left VIII	.040	.017	.094	-.278	-.138	-.221
GM of right VIII	.017	.043	.008	-.370	.019	-.100
GM of left IX	.350	.349	.164	-.153	-.310	-.199
GM of right IX	.408*	.328	.173	-.037	-.191	-.190
GM of posterior vermis	.022	.093	-.066	-.344	-.252	-.091

* $p < .05$, ** $p < .01$

The values show standardized partial regression coefficients.

ADI-R, the Autism Diagnostic Interview-Revised; PANSS, the Positive and Negative Scale; ASD, autism spectrum disorders; SZ, schizophrenia; WM, white matter; GM, gray matter

Table S3. Regions with remarkable correlations in cerebellocerebral structural analysis.

ASD		
	<i>Partial r</i>	<i>p</i> -value
GM of left I-V — Right Caudate	.586	<.001
GM of right Crus II — Left bankssts thickness	.580	<.001
GM of left IX — Right-Caudate	.593	<.001
WM of right I-V — WM of left para hippocampal volume	.606	<.001
WM of left VIII — WM of right caudal anterior cingulate	-.583	<.001
WM of right VIII — WM of left inferior parietal volume	-.590	<.001
GM of Vermis — Right inferior temporal thickness	.700	<.001
SZ		
	<i>Partial r</i>	<i>p</i> -value
GM of left I-V — Right Pallidum	.570	.002
GM of left I-V — Right Amygdala	.600	.001
GM of right I-V — Left Amygdala	.590	.001
GM of left IX — Right Amygdala	.599	.001
GM of right IX — Left Pallidum	.546	.004
GM of Vermis — Right Amygdala	.624	<.001
TD		
	<i>Partial r</i>	<i>p</i> -value
GM of Left IX — Right Pallidum	.500	<.001
WM of Left VIIB — WM of right para hippocampal volume	.500	<.001
WM of Right IX — WM of left posterior cingulate volume	.507	<.001
WM of Vermis — WM of right superior temporal volume	.494	<.001

TD, typically developing; SZ, schizophrenia; ASD, autism spectrum disorder; GM, gray matter; WM, white matter.