

Methods

Association between illness duration and area of the CC

High-resolution structural images were used for area measurement of the CC. The mid-sagittal slice was selected to measure area of the 5 CC sub-regions according to the Rosenberg et al. study (63). Measurements were also made by two raters, with ICC ranging from 0.929 to 0.986. The mean values of the two raters' manual measurements were calculated for subsequent statistical analyses. In addition, total intracranial volume (TIV) was assessed by using the CAT12 toolbox (<http://www.neuro.uni-jena.de/cat>). Then, we tested for the associations between area of each CC sub-region and illness duration using partial correlation analyses with age, gender, educational years and TIV as covariates. Bonferroni correction was adopted to adjust significance levels for multiple comparisons ($P < 0.05/5 = 0.01$).

References

63. Rosenberg DR, Keshavan MS, Dick EL, Bagwell WW, MacMaster FP, Birmaher B. Corpus callosal morphology in treatment-naive pediatric obsessive compulsive disorder. *Prog Neuropsychopharmacol Biol Psychiatry* 1997;21:1269-83.

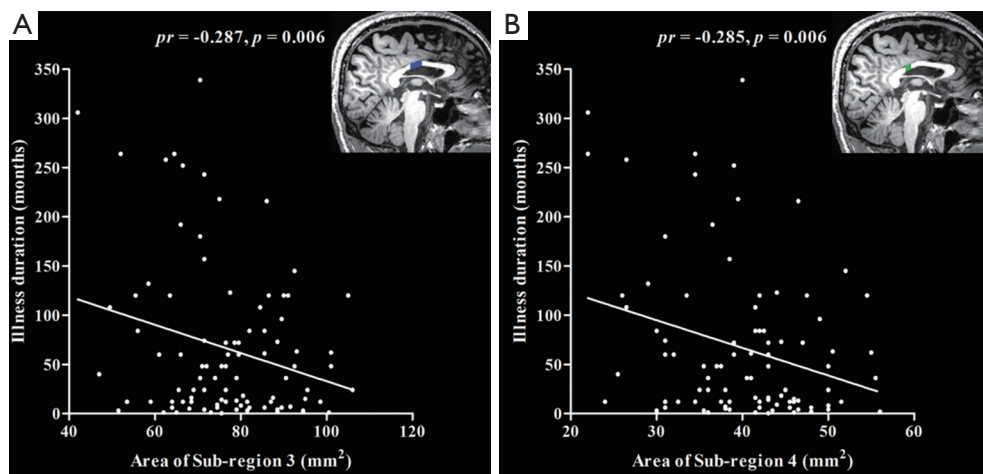


Figure S1 Scatter plots showing negative correlations between illness duration and area of CC sub-region 3 (A) and sub-region 4 (B) in patients with MDD. CC, corpus callosum; MDD, major depressive disorder; pr, partial correlation coefficient.

Table S1 Inter-rater reliability for FA values in the CC

Region	ICC	P
Sub-region 1	0.998	<0.001
Sub-region 2	0.994	<0.001
Sub-region 3	0.994	<0.001
Sub-region 4	0.994	<0.001
Sub-region 5	0.982	<0.001

FA, fractional anisotropy; CC, corpus callosum; ICC, inter-class correlation coefficients.

Table S3 Partial correlations between illness duration and FA of the CC sub-regions in patients with MDD

Region	Illness duration	
	Pr	P
Sub-region 1	-0.068	0.516
Sub-region 2	-0.269	0.009*
Sub-region 3	-0.196	0.060
Sub-region 4	-0.267	0.010
Sub-region 5	-0.296	0.004*

*, $P < 0.05$, Bonferroni corrected. FA, fractional anisotropy; CC, corpus callosum; MDD, major depressive disorder; pr, partial correlation coefficient.

Table S2 Dice coefficients of inter-rater tracked fibers of the CC

Region	Range
Sub-region 1	0.943-1
Sub-region 2	0.927-1
Sub-region 3	0.923-1
Sub-region 4	0.925-1
Sub-region 5	0.940-1

CC, corpus callosum.

Table S4 Partial correlations between illness duration and FA of the CC sub-regions as well as VMHC in the supplementary motor area, precuneus and lingual gyrus in patients with MDD after additionally adjusting for antidepressant types

Imaging parameters	Illness duration	
	Pr	P
FA of sub-region 2	-0.269	0.009
FA of sub-region 5	-0.295	0.005
VMHC of supplementary motor area	0.384	<0.001
VMHC of precuneus	0.388	<0.001
VMHC of lingual gyrus	0.371	<0.001

FA, fractional anisotropy; CC, corpus callosum; VMHC, voxel-mirrored homotopic connectivity; MDD, major depressive disorder; pr, partial correlation coefficient.

Table S5 Partial correlations between illness duration and area of the CC sub-regions in patients with MDD, with age, gender, educational years and TIV as covariates

Region	Illness duration	
	Pr	P
Sub-region 1	-0.096	0.365
Sub-region 2	-0.244	0.019
Sub-region 3	-0.287	0.006*
Sub-region 4	-0.285	0.006*
Sub-region 5	-0.260	0.012

*, P<0.05, Bonferroni corrected. CC, corpus callosum; MDD, major depressive disorder; TIV, total intracranial volume; pr, partial correlation coefficient.

Table S6 Partial correlations between FA of CC sub-region 2 and VMHC in the supplementary motor area as well as between FA of CC sub-region 5 and VMHC in the precuneus and lingual gyrus

VMHC	FA of sub-region 2		FA of sub-region 5	
	Pr	P	Pr	P
Supplementary motor area	-0.131	0.210		
Precuneus			-0.188	0.071
Lingual gyrus			-0.169	0.105

FA, fractional anisotropy; CC, corpus callosum; VMHC, voxel-mirrored homotopic connectivity; pr, partial correlation coefficient.

Table S7 Partial correlations between illness duration and FA of the CC sub-regions as well as VMHC in the supplementary motor area, precuneus and lingual gyrus in patients with MDD after excluding the outliers

Imaging parameters	Illness duration	
	Pr	P
FA of sub-region 2	-0.161	0.127
FA of sub-region 5	-0.244	0.020
VMHC of supplementary motor area	0.321	0.002
VMHC of precuneus	0.373	<0.001
VMHC of lingual gyrus	0.346	0.001

FA, fractional anisotropy; CC, corpus callosum; VMHC, voxel-mirrored homotopic connectivity; MDD, major depressive disorder; pr, partial correlation coefficient.

Table S8 Partial correlations between clinical symptoms and FA of CC sub-regions 2 and 5

Clinical variables	FA of sub-region 2		FA of sub-region 5	
	Pr	P	Pr	P
HAMD	0.003	0.981	0.017	0.873
HAMA	-0.051	0.628	0.032	0.764

FA, fractional anisotropy; CC, corpus callosum; pr, partial correlation coefficient; HAMD, Hamilton Rating Scale for Depression; HAMA, Hamilton Rating Scale for Anxiety.

Table S9 Comparisons in FA of the entire CC and the CC sub-regions as well as in VMHC in the supplementary motor area, precuneus and lingual gyrus between mixed patients and HC

Imaging parameters	F	P
FA of the entire CC	0.067	0.796
FA of sub-region 1	1.125	0.291
FA of sub-region 2	0.584	0.446
FA of sub-region 3	0.240	0.625
FA of sub-region 4	0.031	0.860
FA of sub-region 5	0.308	0.580
VMHC of supplementary motor area	2.085	0.151
VMHC of precuneus	0.408	0.524
VMHC of lingual gyrus	0.823	0.366

The FA values were compared between patients and controls by using a general linear model with age, gender and educational years as nuisance covariates. The VMHC values were compared between patients and controls by using a general linear model with age, gender, educational years and FD as covariates. FA, fractional anisotropy; CC, corpus callosum; VMHC, voxel-mirrored homotopic connectivity; HC, healthy controls; FD, frame-wise displacement.