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Supplemental Data

Table S1

Summary of findings from the previous meta-analyses of DTI studies in MDD patients

Study	Analysis Method	Included studies, n	MDD (medicated)	HC	Results (MDD<HC)	Results (MDD>HC)
Murphy and Frodl (2011)	SDM	7	188 (39)	221	Left superior longitudinal fasciculus, inferior parietal lobe	Right inferior fronto-occipital fasciculus
Liao et al. (2012)	ALE	11	231 (98)	261	Genu of the corpus callosum Right inferior longitudinal fasciculus Right inferior fronto-occipital fasciculus Right posterior thalamic radiation	Body of the corpus callosum Right inferior fronto-occipital fasciculus
wise et al. (2015)	SDM	23	736 (220)	668	left genu of the corpus callosum	

Abbreviation: ALE, activation likelihood estimation; DTI, diffusion tensor imaging; HC, healthy controls; MDD, major depressive disorder; SDM, signed differential mapping.

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Table S2

Imaging Methodology Quality Assessment Checklist (Compiled from 1-3)

Category 1: Subjects	**Score** [§]
1. Patients were evaluated prospectively, specific diagnostic criteria were applied, and demographic data was reported	
2. Healthy comparison subjects were evaluated prospectively, psychiatric and medical illnesses were excluded, and demographic data was reported	
3. Important variables (e.g. illness duration, severity of illness, mean number of episodes; drug status, non-drug therapy status, fraction of MDD patients receiving psychotherapy) were checked either by stratification or statistically	
4. Sample size per group > 10, and no significant difference in age and sex existed	
Category 2: Methods for image acquisition and analysis	
5. Magnet strength at least 1.5T	
6. DTI with at least 12 directions was used to investigated fractional anisotropy differences	
7. Whole brain analysis was automated with no a-priori regional selection	
8. Coordinates reported in a standard space	
9. The imaging technique used was clearly described so as it could be reproduced	
10. Measurements were clearly described so that they could be reproduced	
Category 3: Results and conclusions	
11. Statistical parameters for significant and important non-significant differences were provided	
12. Conclusions were consistent with the results obtained and the limitations were discussed	
	TOTAL /12

[§] Score: 0, criterion not met; 0.5, criterion partially met; 1, criterion fully met.

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Table S3

Sensitivity analyses of DTI studies in MDD in the pooled meta-analysis

Discarded study	Regions with decreased FA			
	R cerebellum hemispheric lobule	Corpus callosum	L superior longitudinal fasciculus III	R superior longitudinal fasciculus III
Arnold et al. (2012)	Y	Y	Y	Y
Choi et al. (2014)	Y	Y	Y	Y
Han et al. (2014)	Y	Y	Y	Y
Hayashi et al. (2014)	Y	Y	Y	Y
Jia et al. (2010)	N	Y	N	N
Korgaonkar et al. (2011)	Y	Y	Y	Y
Lai and Wu (2014)	Y	N	Y	Y
Ma et al. (2007)	Y	Y	Y	Y
Olvet et al. (2014)	Y	N	Y	Y
Ouyang et al. (2011)	Y	Y	Y	Y
Tha et al. (2013)	Y	Y	Y	Y
Wang et al. (2013)	Y	Y	Y	Y
Wu et al. (2011)	Y	Y	Y	Y
Zhu et al. (2011)	Y	Y	Y	Y
Zuo et al. (2012)	Y	Y	Y	Y

Abbreviation: DTI, diffusion tensor imaging; FA, fractional anisotropy; L, left; MDD, major depressive disorder; N, no; R, right; Y, yes.

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Table S4

Regions with altered FA showing significant statistical heterogeneity between studies (voxelwise p<0.005)

Brain regions (MDD < HC)	MNI coordinates			SDM z score	P value	Voxels, n	Cluster breakdown
	X	Y	Z				
R cerebellum hemispheric lobule	18	-58	-22	1.961	0.00001	94	R cerebellum hemispheric lobule, BA 37, 19, 18
Corpus callosum	18	40	26	1.319	0.00024	19	Corpus callosum

Abbreviation: BA, Brodmann area; FA, fractional anisotropy; HC, healthy controls; MDD, major depressive disorder; MNI, Montreal Neurological Institute; R, right; SDM, signed differential mapping.

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Fig. S1

Flowchart describing the studies selection in the present meta-analysis

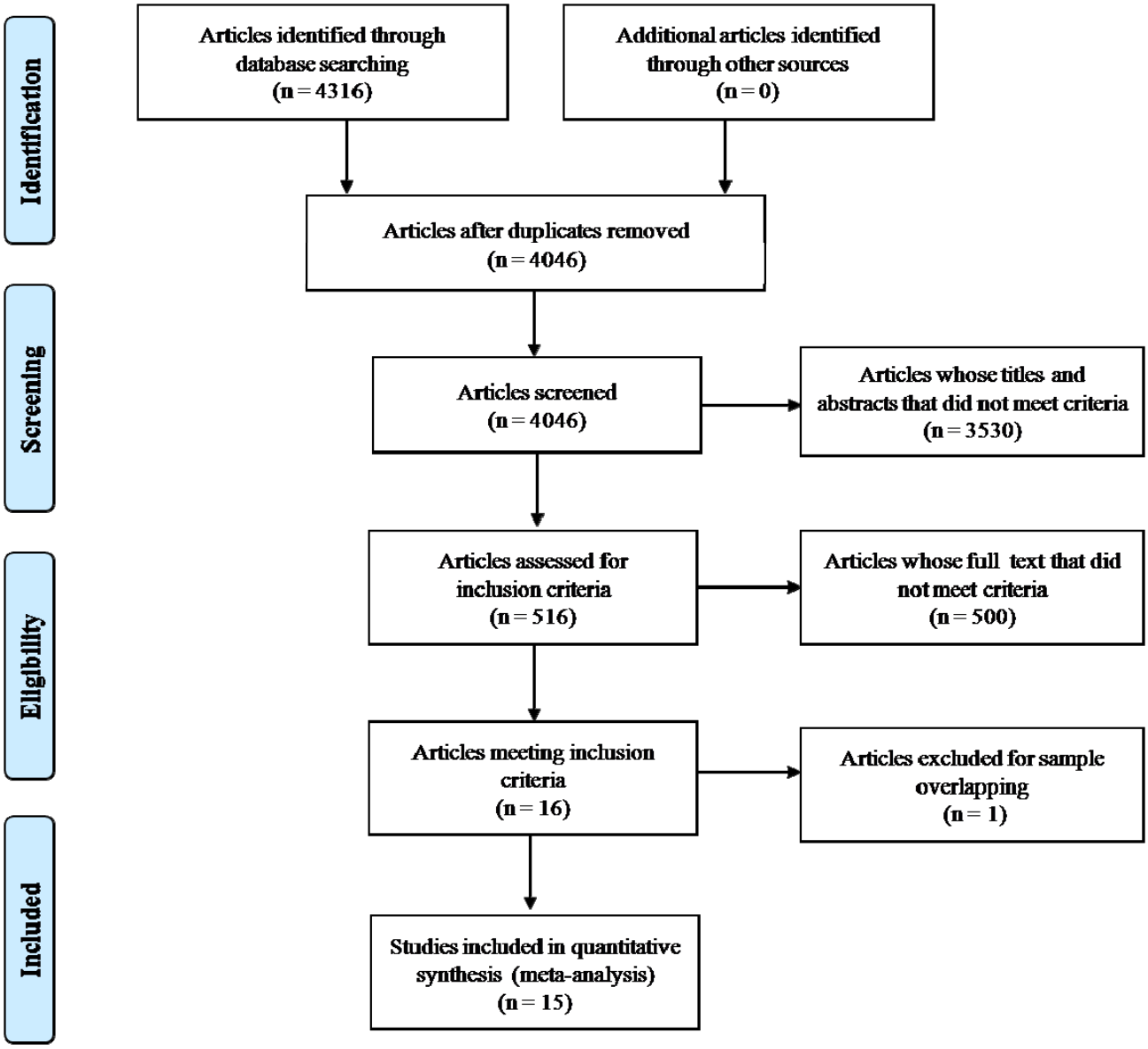

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Fig. S2

Regions showing reduced fractional anisotropy in the subgroup analyses. The first four images (A, B, C and D) demonstrated the findings of the medication wash-out subgroup analysis, showing decreased fractional anisotropy in WM of the right cerebellum hemispheric lobule, body of the CC, and bilateral SLF III. The last image (E) displayed the results of the medication-naive subgroup analysis in the genu of the CC and right anterior thalamic projections extending to the right SLF III. Abbreviation: ATP, anterior thalamic projections; CC, corpus callosum; CHL, cerebellum hemispheric lobule; HC, healthy controls; L, Left; MDD, major depressive disorder; R, right; SLF, superior longitudinal fasciculus.

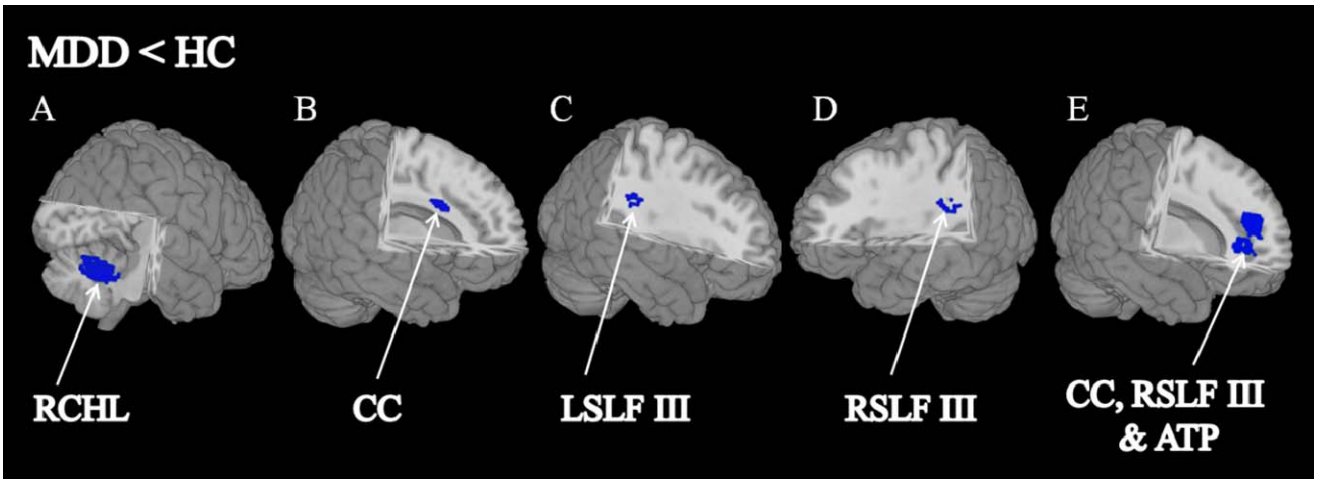

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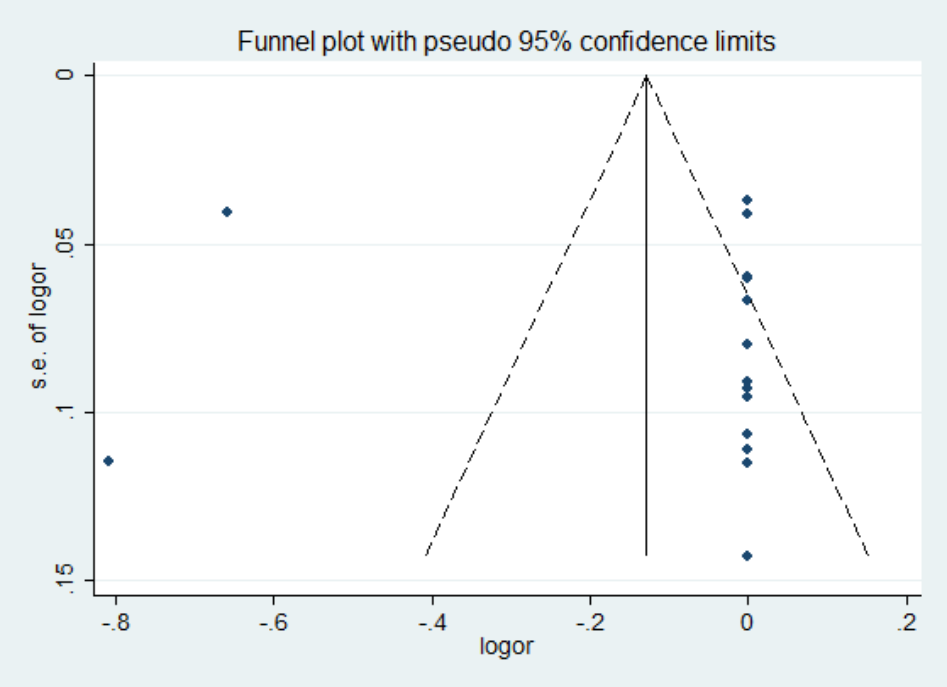
Fig. S3

Results of the funnel plots.

right cerebellum hemispheric lobule	
	Funnel plot showed that nine studies contributed to the cluster of right cerebellum hemispheric lobule, and six to the other clusters.

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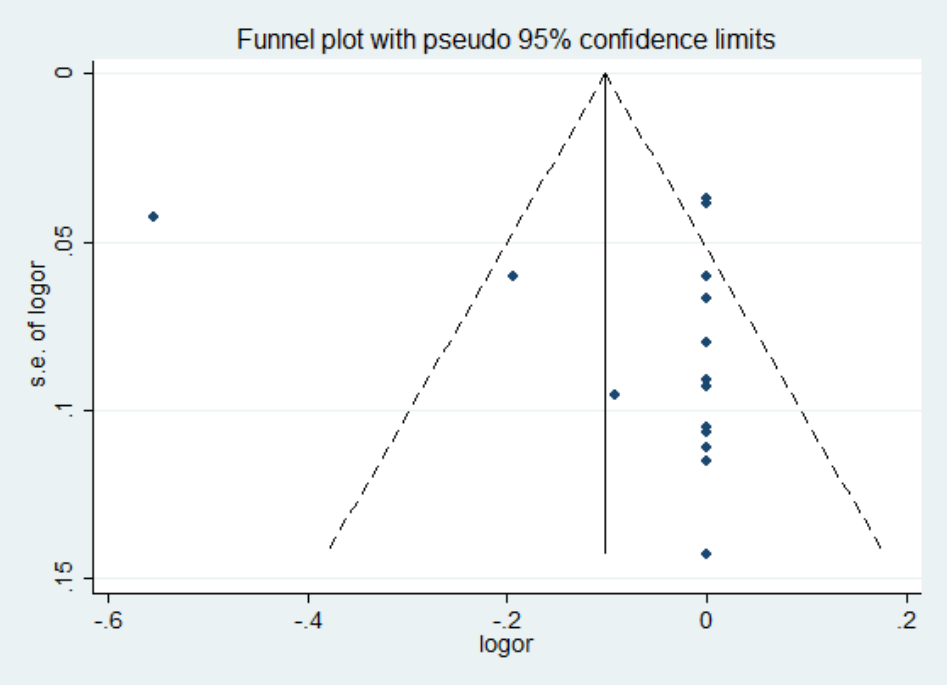
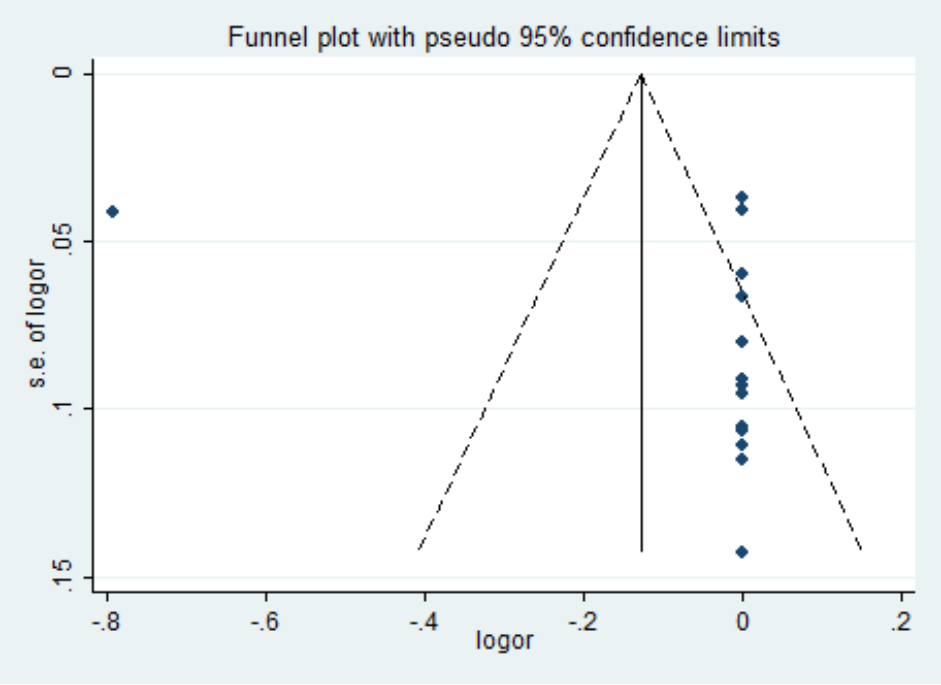
body of the corpus callosum	
	Funnel plot showed that twelve studies contributed to the body of the corpus callosum, and three to the other clusters.
left superior longitudinal fasciculus III	

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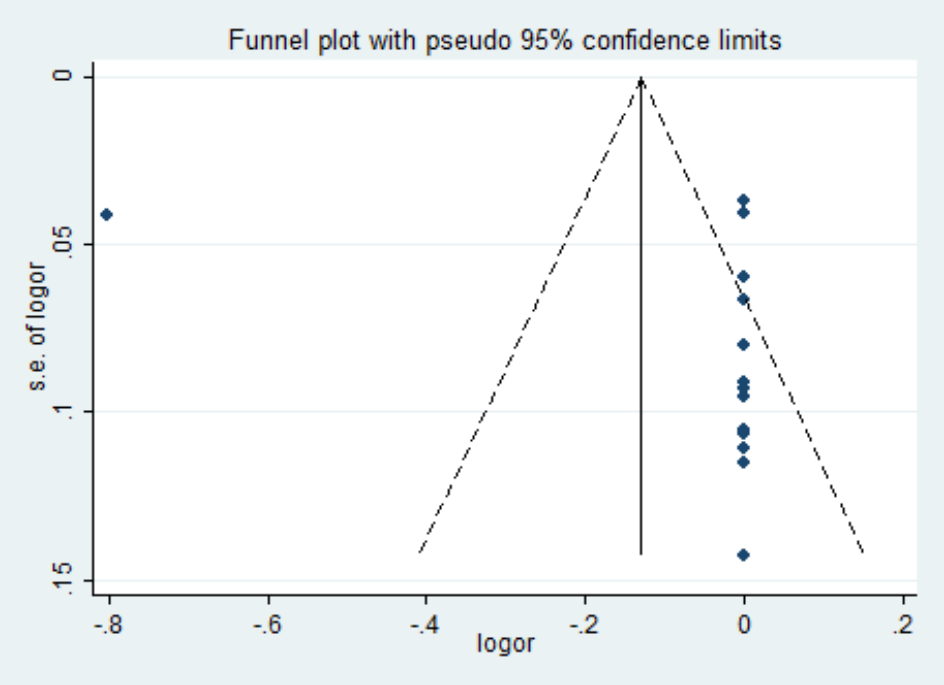
	Funnel plot showed that eleven studies contributed to left superior longitudinal fasciculus III, and four to the other clusters.
right superior longitudinal fasciculus III	
	Funnel plot showed that eleven studies contributed to right superior longitudinal fasciculus III, and four to the other clusters.