Supplementary Methods

Image analysis

Whole-brain volumetric segmentation and cortical surface reconstruction was performed using FreeSurfer 5.3, a well-validated and widely used software suite which is documented and freely available online (http://surfer.nmr.mgh.harvard.edu/). The technical details and specific processing steps are described in detail elsewhere (Dale, Fischl, & Sereno, 1999; Fischl et al., 2002; Fischl, Sereno, & Dale, 1999). After standard processing, the images were processed using FreeSurfer 5.3's longitudinal stream (Reuter, Schmansky, Rosas, & Fischl, 2012). This includes the creation of an unbiased within-subject template space and image ("base") using robust, inverse consistent registration (Reuter, Rosas, & Fischl, 2010). Several processing steps, such as skull stripping, Talairach transforms, atlas registration, as well as spherical surface maps and parcellations are then initialized with common information from the within-subject template, significantly increasing reliability and statistical power (Reuter et al., 2012).

Regions of interest.

The five lobes were derived by combining the following cortical regions from the DKT atlas: frontal lobe: superior frontal, rostral and caudal middle frontal, lateral and medial orbitofrontal, pars orbitalis, pars triangularis, pars opercularis, precentral and paracentral; temporal lobe: superior, middle and inferior temporal, transverse temporal, insula, fusiform, parahippocampal and entorhinal; parietal lobe: superior and inferior parietal, supramarginal, postcentral and precuneus; occipital lobe: lateral occipital, cuneus, pericalcarine and lingual; cingulate: rostral and caudal anterior, posterior and isthmus cingulate.

Mixed model-fitting procedure

All mixed models followed a formal model-fitting procedure. That is, we started with an unconditional means model that only included a fixed and random intercept, to allow for individual differences in intercept. We compared the unconditional means model with different growth models (i.e., linear, quadratic, or cubic) that tested the grand mean of age using the polynomial function. We added a random slope to the best fitting age model; however this did not improve model fit. Preferred models had lower Bayesian Information Criterion (BIC; Schwarz, 1978) values. Thereafter, we added sex, depression and the interaction between depression and age to the best fitting age.

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Supplementary Results

We tested whether the current subsample (n=205) differed from the original sample (n=299). Gender distribution did not differ between included (109/96 female/male) and non-included group (44/50 female/male), χ^2= 0.31, p= .19. Furthermore, the included (M=110, SD=9.76) and non-included group (M=108, SD = 13.40) did not differ on IQ estimate at TP1, t_{296}=-1.23, p=.28. Yet, our sample was significantly younger (M=13.55, SD=2.50) at TP1 than the participants that were not included (M=14.94, SD=5.32), t_{297}=2.41, p=.18.

Supplementary Table 1. BIC values for null, linear, quadratic and cubic age models to describe the relationship with age and brain measures reported in the table.

	Models				
	Null model	Random Intercept	Linear	Quadratic	Cubic
Cortical Thickness					
Temporal	-780	-897	-1287	-1300	**-1302**
Frontal	-631	-794	-1187	-1198	**-1206**
Parietal	-718	-867	-1281	-1304	**-1304**
Occipital	-855	-1184	**-1432**	-1429	-1423
Cingulate	-587	-764	-1384	-1401	**-1409**
Surface area					
Temporal	10074	9053	8715	8720	**8683**
Frontal	10666	9585	9174	9170	**9118**
Parietal	10312	9475	8943	8909	**8884**
Occipital	9689	8815	8586	8577	**8566**
Cingulate	8818	7526	7249	7246	**7240**
Subcortical volume					
Hippocampus	8001	**7352**	7357	7362	7364
Amygdala	6971	6184	6186	**6185**	6192

Supplementary Table 2. Model parameters for the best fitting model for the five lobes of cortical thickness. CI = confidence interval.

		Cortical Thickness			
Factors		B	*p*	95% CI	
Temporal				lower	upper
	Intercept	2.945	<.001	2.896	2.995
	Age	-1.471	<.001	-1.905	-1.037
	Age^2	0.027	.873	-0.298	0.351
	Age^3	0.166	.302	-0.146	0.478
	Depression group	-0.008	.689	-0.044	0.029
	Sex	0.008	.578	-0.020	0.037
	Age x Depression group	-0.342	.058	-0.691	0.008
	Age^2 x Depression group	0.169	.205	-0.090	0.429
	Age^3 x Depression group	-0.038	.775	-0.299	0.223
Frontal					
	Intercept	2.827	<.001	2.776	2.878
	Age	-1.304	<.001	-1.793	-0.814
	Age^2	0.292	.126	-0.079	0.663
	Age^3	0.308	.095	-0.050	0.667
	Depression group	-0.012	.537	-0.049	0.026
	Sex	0.016	.286	-0.013	0.045
	Age x Depression group	-0.573	.005	-0.967	-0.179
	Age^2 x Depression group	-0.043	.778	-0.340	0.254
	Age^3 x Depression group	-0.097	.527	-0.397	0.202
Parietal					
	intercept	2.560	<.001	2.510	2.610
	Age	-1.471	<.001	-1.901	-1.042
	Age^2	0.120	.464	-0.200	0.440
	Age^3	0.193	.224	-0.115	0.501
	Depression group	-0.028	.142	-0.065	0.009
	Sex	0.014	.352	-0.015	0.042
	Age x Depression group	-0.372	.037	-0.718	-0.027
	Age^2 x Depression group	0.143	.278	-0.113	0.399
	Age^3 x Depression group	-0.070	.594	-0.327	0.187
Occipital					
	Intercept	2.103	<.001	2.057	2.149
	Age	-0.900	<.001	-1.289	-0.510
	Depression group	-0.038	.030	-0.072	-0.004
	Sex	0.008	.543	-0.018	0.035
	Age x Depression group	-0.138	.388	-0.451	0.175

Cingulate					
	Intercept	2.935	<.001	2.879	2.990
	Age	-2.094	<.001	-2.456	-1.732
	Age^2	0.232	.087	-0.031	0.495
	Age^3	0.181	.163	-0.071	0.433
	Depression group	0.002	.926	-0.039	0.043
	Sex	-0.022	.184	-0.053	0.010
	Age x Depression group	-0.165	.270	-0.457	0.126
	Age^2 x Depression group	-0.021	.843	-0.231	0.189
	Age^3 x Depression group	-0.046	.667	-0.257	0.164

Supplementary Table 3. Model parameters for the best fitting model for the five lobes of cortical surface area. CI = confidence interval.

		Cortical Thickness			
Factors		B	*p*	95% CI	
Temporal				lower	upper
	Intercept	34871.810	<.001	33162.591	36581.030
	Age	-9748.510	<.001	-13219.808	-6277.212
	Age^2	-423.170	.736	-2870.646	2024.315
	Age^3	3776.680	.002	1444.213	6109.145
	Depression group	237.910	.711	-1013.808	1489.622
	Sex	3750.960	<.001	2774.454	4727.476
	Age x Depression group	-3210.140	.026	-6006.120	-414.166
	Age^2 x Depression group	646.200	.519	-1302.794	2595.199
	Age^3 x Depression group	-1290.600	.197	-3233.781	652.573
Frontal					
	Intercept	58765.450	<.001	55848.034	61682.876
	Age	-23264.590	<.001	-27980.628	-18548.553
	Age^2	-1481.420	.385	-4802.722	1839.874
	Age^3	6821.890	<.001	3657.283	9986.488
	Depression group	1380.890	.208	-755.414	3517.203
	Sex	6806.280	<.001	5139.431	8473.123
	Age x Depression group	-487.340	.803	-4285.934	3311.257
	Age^2 x Depression group	-265.190	.845	-2909.815	2379.433
	Age^3 x Depression group	-2724.670	.045	-5361.012	-88.334
Parietal					
	Intercept	42109.220	<.001	40065.168	44153.266
	Age	-26462.920	<.001	-30772.811	-22153.031
	Age^2	2200.860	.159	-838.615	5240.344
	Age^3	5586.680	<.001	2689.914	8483.445
	Depression group	1036.630	.178	-460.328	2533.578
	Sex	5112.800	<.001	3945.006	6280.598
	Age x Depression group	651.160	.715	-2820.260	4122.578
	Age^2 x Depression group	655.290	.598	-1765.178	3075.750
	Age^3 x Depression group	-2812.840	.024	-5226.150	-399.524
Occipital					
	Intercept	22293.664	<.001	21132.439	23454.890
	Age	-8373.765	<.001	-12079.383	-4668.148
	Age^2	1133.645	.401	-1491.127	3758.417
	Age^3	4040.312	.002	1536.902	6543.723
	Depression group	438.190	.316	-412.546	1288.927

	Sex	2842.089	<.001	2178.761	3505.418
	Age x Depression group	-1910.866	.213	-4895.462	1073.731
	Age^2 x Depression group	290.966	.786	-1799.908	2381.840
	Age^3 x Depression group	-2155.049	.045	-4240.933	-69.165
Cingulate					
	Intercept	7942.049	<.001	7418.808	8465.290
	Age	-2727.167	<.001	-3540.196	-1914.138
	Age^2	143.112	.627	-429.383	715.606
	Age^3	642.643	.022	97.172	1188.114
	Depression group	180.765	.358	-202.379	563.908
	Sex	1074.246	<.001	775.295	1373.197
	Age x Depression group	133.670	.691	-521.196	788.536
	Age^2 x Depression group	101.149	.666	-354.702	557.000
	Age^3 x Depression group	-324.213	.166	-778.627	130.201

Supplementary Table 4. BIC values for best age model controlling for sex and the model including Sex interaction terms for thickness of frontal, parietal, and occipital lobe and surface area of temporal, frontal, parietal, and occipital lobes.

	Models	
	Best Age model * BDI + Sex	Best Age model * BDI * Sex
Cortical Thickness		
Frontal	-1188	-1145
Parietal	-1283	-1250
Occipital	-1420	-1402
Surface area		
Temporal	8643	8683
Frontal	9076	9111
Parietal	8829	8867
Occipital	8526	8565

Supplementary Table 5. Model parameters for the best fitting model for hippocampal and amygdala volume. CI = confidence interval.

	Subcortical volumes			
Factors	**B**	***p***	**95% CI**	
Hippocampus			lower	upper
Intercept	4889.008	<.001	4781.924	4996.093
Age	401.840	.149	-141.363	945.044
Depression group	-47.114	.593	-220.184	125.956
Sex	346.237	<.001	205.081	487.393
Age x Depression group	-1001.020	.102	-2194.200	192.162
Amygdala				
Intercept	1488.817	<.001	1451.552	1526.082
Age	-149.990	.070	-310.803	10.823
Age^2	-158.099	.009	-275.321	-40.877
Depression group	-40.983	.196	-102.759	20.793
Sex	181.432	<.001	131.971	230.893
Age x Depression group	31.661	.864	-328.683	392.004
Age^2 x Depression group	137.130	.294	-117.879	392.140

– Supplement –

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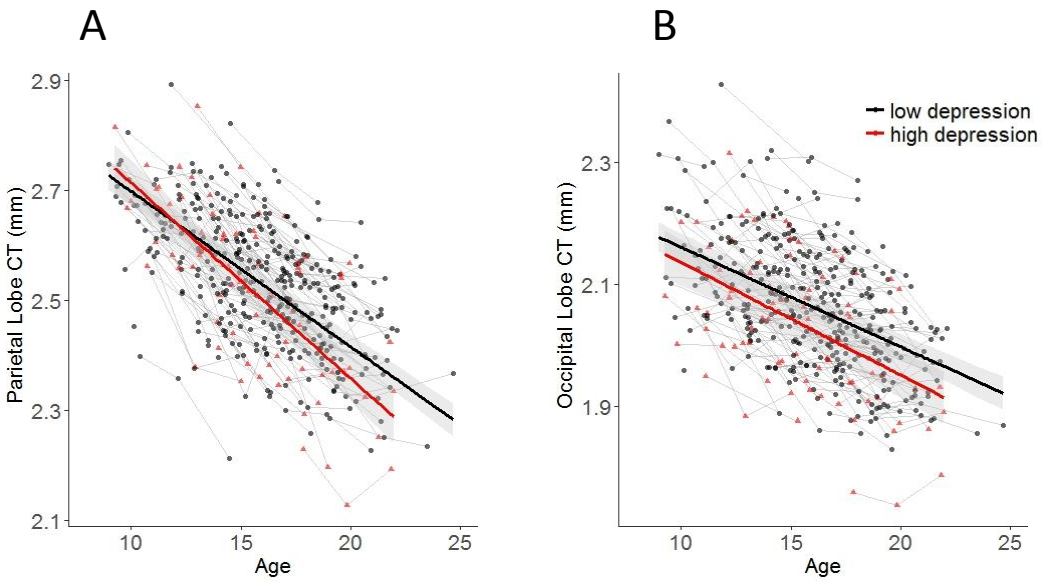
Supplementary Figure 1 Developmental trajectories for cortical thickness of the parietal lobe (A), and Occipital lobe (B). Mean cortical thickness in mm (y-axis) by age in years (x-axis) is shown for participants in the high depression group (red) and low depression group (grey) based on the optimal fitting model. The shade represents 95% confidence interval. Individual participants are represented by individual lines. Participants measured once are represented by dots.



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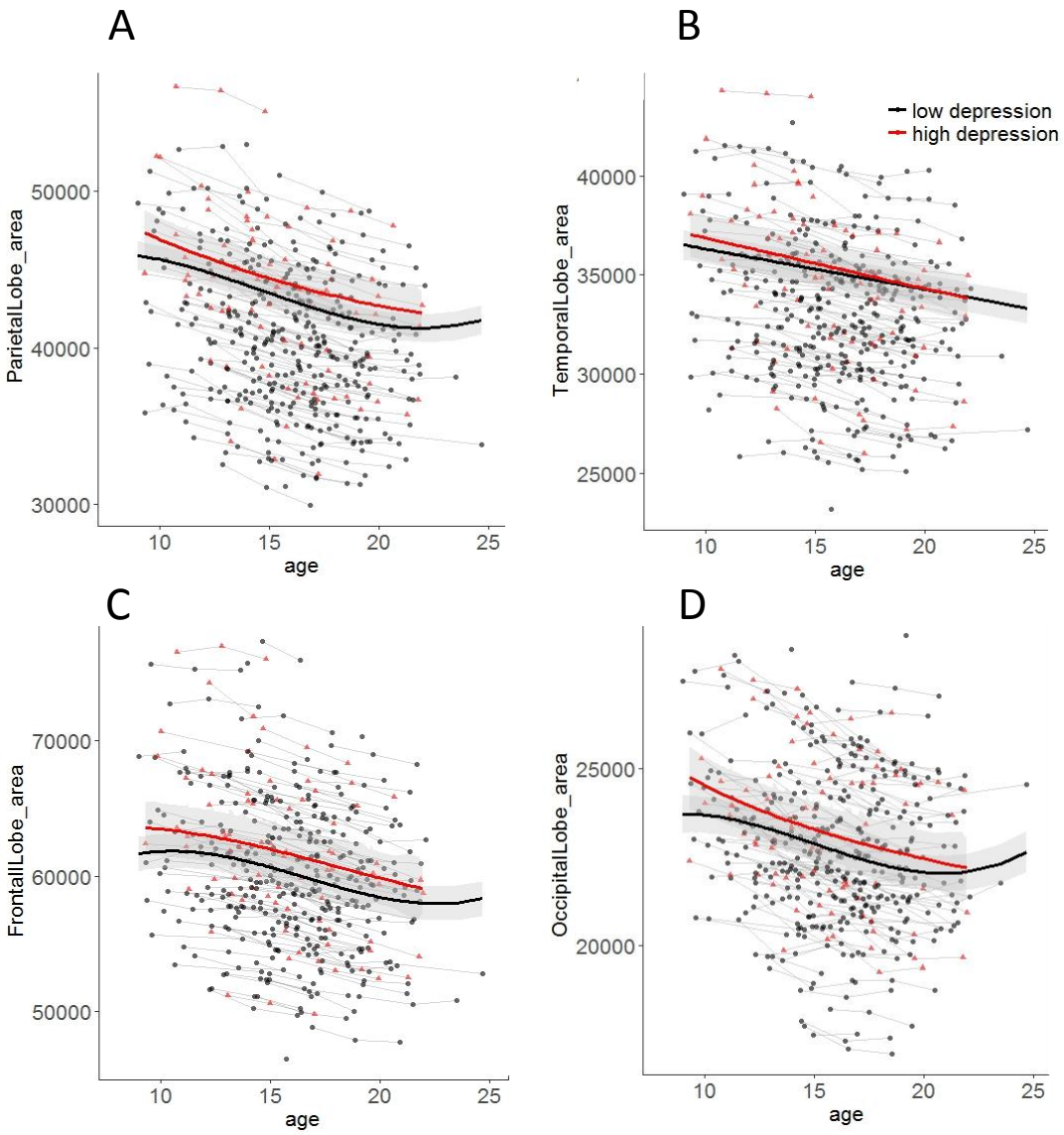
Supplementary Figure 2. Developmental trajectories for cortical surface area of the parietal lobe (A), temporal lobe (B), frontal lobe (C), Occipital lobe (D). Mean surface area in mm^2 (y-axis) by age in years (x-axis) is shown for participants in the high depression group (red) and low depression group (grey) based on the optimal fitting model. The shade represents 95% confidence interval. Individual participants are represented by individual lines. Participants measured once are represented by dots.



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