Supplementary Methods

Quality control

A neuroimaging expert at each site individually examined each image segmentation by overlaying the segmentation label of each structure on the T1-weighted brain scan. Further, we collected study-wide statistics (means and standard deviations) as well as histogram plots in order to identify non-normally distributed data and major outliers. For additional quality control, outliers were determined by calculating the interquartile range for each of the volumes per cohort and per group (OCD patients and healthy controls). A subject was considered a statistical outlier if its volume was above or below 1.5 times the interquartile range. For each subject that was marked as a statistical outlier, individual sites were asked to re-inspect the subject's segmentation in order to evaluate that is was segmented properly, and excluded if necessary. Lastly, the coordinating PI site (VUMC Amsterdam) checked the histograms and summary statistics of every site on possible irregularities that would indicate incorrect segmentations. If needed sites were asked to re-inspect suspicious irregularities.

Meta-analytical details

This meta-analytical framework enabled us to combine data from multiple sites and weigh individual effect size estimates by level of precision. All meta-analysis models were fit using the restricted maximum likelihood method (REML (1)). Percent differences were calculated for each effect size difference in order to restate the difference in terms of percentage change in brain volume. Percent difference is the meta-analyzed mean difference between cases and controls divided by the meta-analyzed mean volume in controls (x 100) for each trait. In addition to meta-analyzed Cohen's d effect size estimates and percent differences, we calculated heterogeneity scores (I^2) for each structure, which provide the percent of the total variance in effect size that can be explained by heterogeneity alone (2). Lower values of I^2 indicate lower variance in the effect size estimation across studies.

Power analysis

We performed post hoc power analyses with G*Power Version 3.2.1. (3) to estimate the sample sizes required to replicate the effects observed in this study. Sample size estimates present the number of subjects required in each group (in a case-control comparison) to detect an effect with 80% power at a nominal significance level (P=0.05) for a two-sided t-test assuming unequal variance. All power estimates were obtained using the pwr package (version 1.1.1.) in R.

Adult comparison: On the basis of the final meta-analyzed effect size found in this study, a study comparing the general OCD population with controls would require 930 subjects in each group to detect mean differences in hippocampal volumes and 615 subjects in each group to detect mean differences in pallidum volumes to have 80% power at a significance level of P-value=0.05. With 1,495 adult OCD patients and 1472 healthy controls, we were able to detect brain volume differences as small as Cohen's d=0.1029 at a nominal significance level P-value=0.05 and 80% power (and Cohen's d=0.1327 at our study significance threshold P-value=5.6×10^{-3}).

Pediatric comparison: Based on the effect sizes found in our study, a pediatric study would require 155 unmedicated OCD patients and 155 healthy controls to have 80% power to detect a difference in thalamus volume at P-value=0.05. The pediatric sample size of 335 OCD patients and 287 healthy controls, enabled us to detect brain volume differences with an effect size of Cohen's d=0.2257 at a nominal significance level and 80% power (and Cohen's d=0.2914 at our study significance threshold P-value=5.6×10^{-3}).

Included sites per clinical variable

When a subgroup of the sample had too little subjects (<10), this sample got excluded from the meta-regression analysis. When less than four sites could be included in the meta-regression analysis, the data was considered insufficient to permit analyses and provide reliable results.

Adult meta-analyses

Medication status

Ten samples were not included in the medicated versus controls analysis because of medication-free samples (van den Heuvel 3T II, van den Heuvel 1.5T I, Kwon 1.5T I, Nakamae 3T II, Reddy 1.5T I, Simpson, and Wang) or too little observations (< 10) on at least one of the brain structures (Hoexter, Kwon 3T, and Stein). Likewise, 8 samples (Cheng 1.5T I, Denys, Hoexter, Menchon, Nakao, Spalletta, Tolin, and Walitza) were not included because of too little observations in the unmediated OCD patients versus controls comparison. The medicated versus unmedicated comparison was performed with the 8 samples (Benedetti, Beucke, Cheng 3T II, Koch, Kwon 1.5T II, Mataix-Cols, Nakamae 1.5T I, and Reddy 3T II) in which both medicated and unmedicated patients were present and 10 or more observations were available on all of the brain structures (see Table S3A–C).

Comorbid MDD

Twelve samples were excluded from the comorbid depression versus controls comparison because of the following reasons: 1) samples without depression comorbidity (Stein and Wang), 2) comorbidity status was not assessed (Koch), and 3) too little observations per condition (Benedetti, Cheng 1.5T I, Kwon 1.5T I, Kwon 1.5T II, Kwon 3T III, Nakamae 3T II, Reddy 1.5T I, Spalletta, Walitza). Two samples were not included in the comparison between patients without comorbid depression versus controls, because this was not assessed (Koch) and due to too little observations per condition (Walitza). The comorbid versus no comorbid MDD comparison was performed with the 13 samples (Beucke, Cheng 3T II, Denys, van den Heuvel 1.5T I, van den Heuvel 3T II, Hoexter, Mataix-Cols, Menchon,

Nakamae 1.5T I, Nakao, Reddy 3T II, Simpson, and Tolin) in which patients with comorbid depression and without comorbid depression were present and 10 or more observations were available on all of the brain structures (see Table S5A–C).

Comorbid anxiety disorder

Nineteen samples were not included in the comparison of OCD patients with a comorbid anxiety disorder versus controls. This variable was not assessed in two samples (Koch and Nakao) and in two other samples no patients with a comorbid anxiety disorder were present (Stein and Wang). The other 15 samples (Benedetti, Beucke, Cheng 1.5T I, Denys, van den Heuvel 1.5T I, van den Heuvel 3T II, Kwon 1.5T I, Kwon 1.5T II, Kwon 3T III, Nakamae 1.5T I, Nakamae 3T II, Reddy 1.5T I, Simpson, Spalletta, and Walitza) did not have enough observations on each brain structure. In the comparison of OCD patients without a comorbid anxiety disorder and controls 6 samples were excluded of which two because the variable was not assessed (Koch and Nakao) and the remaining 4 because of too little observations (Cheng 1.5T I, Cheng 3T II, Mataix-Cols, and Walitza). The comorbid versus no comorbid anxiety comparison was performed with 4 samples (Hoexter, Menchon, Reddy 3T II, and Tolin) in which patients with comorbid anxiety and without comorbid anxiety were present and 10 or more observations were available on all of the brain structures (see Table S6A–C).

Symptom dimensions

OCD symptom severity and symptom dimensions were assessed with the YBOCS severity scale and symptom checklist. The presence of five previously identified symptom

dimensions (4,5) designated as 1) “aggressive/checking ”, 2) “contamination/cleaning ”, 3) “symmetry/ordering”, 4)“sexual/religious obsessions”, and 5) “hoarding” was assessed. The dimensional structure of the YBOCS Checklist has been reasonably replicated and symptom dimensions are relatively independent from overall symptom severity (6). The consistency in the literature is remarkable despite the use of different instruments (YBOCS Checklist versus Obsessive-Compulsive Inventory) and methods (current versus lifetime symptoms, dichotomous versus ordinal scoring and factor versus cluster analysis e.g.). In agreement with many previous studies (7–10), responses on the major categories were quantified by the absence and presence of the symptoms under that category, either current or lifetime. A dimension was considered to be present if the patient reported either current or lifetime history of at least one symptom included in the dimension. The regression models existed of one symptom dimension being the covariate of interest and the other symptom dimensions being nuisance covariates (together with age, gender, and ICV as nuisance covariates).

The following samples did not assessed the YBOCS symptom checklist: Cheng 1.5T I, Cheng 3T II, Koch, Walitza. Therefore, these samples were excluded from the symptom dimension analyses. *Aggressive/checking*: Seven sites (Benedetti, Kwon 3T III, Menchon, Nakao, Reddy 1.5T I, Reddy 3T II, and Tolin) were included in the analysis for the first symptom dimension analysis. *Contamination/cleaning:* Nine sites (Benedetti, Kwon 3T III, Menchon, Nakamae 1.5T I, Nakao, Reddy 1.5T I, Reddy 3T II, Spalletta, Stein, and Tolin) were included in the second symptom dimension analysis. *Symmetry/ordering:* Thirteen sites (Benedetti, Beucke, Kwon 1.5T II, Kwon 3T III, Mataix-Cols, Menchon, Nakamae 1.5T I, Nakamae 3T II, Nakao, Reddy 1.5T I, Reddy 3T II, Simpson, and Spalletta) were included in

the third symptom dimension analysis. *Sexual/religious obsessions:* Eleven sites (Beucke, Kwon 1.5T II, Kwon 3T III, Mataix-Cols, Menchon, Nakamae 1.5T I, Nakao, Reddy 1.5T I, Reddy 3T II, Simpson, and Spalletta) were included in the fourth symptom dimension analysis. *Hoarding*: Twelve sites (Benedetti, Beucke, Denys, Kwon 1.5T II, Kwon 3T III, Mataix-Cols, Menchon, Nakamae 3T II, Nakamae 1.5T I, Nakao, Reddy 1.5T I, Reddy 3T II, and Spalletta) were included in the fifth symptom dimension analysis. All remaining sites were excluded due to too little observations on the covariate of interest.

Age of onset/Disease duration

One sample was not included in the age of onset and disease duration regression analyses because of missing information on age of onset (Tolin). This sample was, thus, also not included in the analyses in which early onset, late onset and controls were compared (Table S7A–C) nor in the regression analysis with age of onset and disease duration as continuous variables (Table S8A and S9A).

Disease severity

Each site assessed disease severity with the YBOCS. All sites entered in the regression analysis on severity (Table S10).

Pediatric meta-analyses

Medication status

Four samples were not included in the medicated versus controls analysis (Table S4A) because of medication-free samples (Huyser and Soreni) or too little observations (< 10)

on at least one of the brain structures (Arnold and Walitza). Likewise, 4 samples (Arnold, Reddy 3T III, Soreni, and Walitza) were not included because of too little observations in the unmediated OCD patients versus controls comparison (Table 4). The medicated versus unmedicated comparison was performed with the 5 samples (Fitzgerald, Gruner, Hoexter, Lazaro 1.5T I, Lazaro 3T II) in which both medicated and unmedicated patients were present and 10 or more observations were available on all of the brain structures (see Table S4B).

Comorbid MDD

All pediatric sites, except for one, had less than 10 subjects with a comorbid lifetime depression in their sample. One site had not assessed lifetime but current diagnosis on comorbid depression. Thus the meta-analysis on patients with a comorbid depression versus healthy controls was not conducted. The comparison of patients with versus patients without a comorbid depression was not conducted for the same reason. The comparison of patients without a comorbid depression versus healthy controls was conducted, but not reported as this comparison only does not contribute to the relative meaning of a comorbid depression.

Comorbid anxiety disorder

Seven pediatric sites had less then 10 subjects with a comorbid anxiety disorder in their sample. Only two sites had enough subjects to perform stratified analyses. However, the OCD patients with a comorbid anxiety disorders versus healthy control meta-analysis could not be conducted statistically with only 2 sites. Due to the same reason the OCD patients

with a comorbid anxiety disorder versus without a comorbid anxiety disorder meta-analysis could not be conducted either. The comparison of patients without a comorbid anxiety disorder versus healthy controls was conducted, but not reported because this comparison only does not contribute to the relative meaning of a comorbid anxiety disorder.

Symptom dimensions

Three pediatric samples had not assessed the CYBOCS symptom checklist. Another three sites did not have enough subjects with a presence and/or absence in each of the subdimensions in their sample. For the aggression/check dimension only two sites were left with sufficient number of subjects with and without the presence of this subdimension; for the contamination/cleaning dimension only one site was left for analysis; for the symmetry/ordering dimension only two sites were left; for the sexual/religious obsessions three sites were left to analyze; and finally two samples were left with respect to the hoarding dimension.

Age of onset/disease duration

Three samples were not included in the age of onset and disease duration regression analyses because of missing information on age of onset (Gruner and Soreni) or too little observations (Walitza).

Disease severity

Each site assessed disease severity with the CYBOCS. However, 1 site was not entered in the regression analysis on severity because of too little observations on at least one region of interest due to quality control exclusions (Walitza).

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Supplementary Tables

Table S1: Image acquisition parameters per site.

Table S2: Full meta-analytic results for each mean structure for the pediatric OCD patients versus pediatric controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S3A: Full meta-analytic results for each mean structure for the adult medicated OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S3B: Full meta-analytic results for each mean structure for the adult unmedicated OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S3C: Full meta-analytic results for each mean structure for the adult medicated OCD patients versus unmedicated OCD patients comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S4A: Full meta-analytic results for each mean structure for the pediatric medicated OCD patients versus pediatric controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S4B: Full meta-analytic results for each mean structure for the medicated versus unmedicated pediatric OCD comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S5A: Full meta-analytic results for each mean structure for the adult OCD patients with a comorbid depression versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S5B: Full meta-analytic results for each mean structure for the adult OCD patients without a comorbid depression versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S5C: Full meta-analytic results for each mean structure for the adult OCD patients with versus without a comorbid depression comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S6A: Full meta-analytic results for each mean structure for the adult OCD patients with a comorbid anxiety disorder versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S6B: Full meta-analytic results for each mean structure for the adult OCD patients without a comorbid anxiety disorder versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S6C: Full meta-analytic results for each mean structure for the adult OCD patients with versus without a comorbid anxiety disorder comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S7A: Full meta-analytic results for each mean structure for the adult early onset OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S7B: Full meta-analytic results for each mean structure for the adult late onset OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S7C: Full meta-analytic results for each mean structure for the adult late onset versus early onset OCD patients comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

Table S8A: Full meta-analytic results for each mean structure for the association between age of onset and brain volumes within adult OCD patients controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

Table S8B: Full meta-analytic results for each mean structure for the association between age of onset and brain volumes within pediatric OCD patients controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

Table S9A: Full meta-analytic results for each mean structure for the association between disease duration and brain volumes within adult OCD patients controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

Table S9B: Full meta-analytic results for each mean structure for the association between disease duration and brain volumes within pediatric OCD patients controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

Table S10: Full meta-analytic results for each mean structure for the association between symptom severity and brain volumes within OCD patients based on the YBOCS, controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

Table S11: Full meta-analytic results for each mean structure for the association between symptom severity and brain volumes within pediatric OCD patients based on the CYBOCS, controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

Table S12: Full results from the moderator analyses in the adult samples of mean age, field strength of scanner, percent of medicated patients, percent of patients taking SSRIs, percent of

patients taking antipsychotics, percent comorbid anxiety, and percent comorbid depression. The table is split into two parts to fit on a single page for easier comparison.

Table S13: Full results from the moderator analyses in the pediatric samples of mean age and field strength of scanner.

Table S14: Significant ($P < 5.6 \times 10^{-3}$) results of the adult mega-analysis of subcortical brain volumes. The standardized beta is reported. Analyses are controlled for age, sex, scan center and ICV.

Table S15. Significant ($P < 5.6 \times 10^{-3}$) results of the pediatric mega-analysis of subcortical brain volumes. The standardized beta is reported. Analyses are controlled for age (or age squared if listed), sex, scan center and ICV.

Table S1. Image acquisition parameters per site.

PI site	Site, Country, Sample	Scanner vendor and type	Acquisition parameters
Arnold	Ontario, CAN	3T Siemens Tim Trio VB17	Matrix 192 x 240, 256 slices, Voxel size = 1 mm ISO
Benedetti	Milan, ITA	3T Philips Gyroscan Intera	Matrix 256 x 256, 220 slices, Voxel size 1 x 1 x 1 mm
Beucke	Berlin, GER	1.5T Siemens Sonata	Matrix 256 x 224, 176 slices, Voxel size = 1mm ISO
Cheng	Kunming, CHN I	1.5T GE Signa Excite	Matrix 256 x 256, 172 slices, Voxel size 0.93 x 0.93 x 0.9 mm
	Kunming, CHN II	3T Philips Achieva	Matrix 228 x 228, 230 slices, Voxel size 1.1 x 1.1 x 0.6 mm
Denys	Amsterdam, NLD	3T Philips Intera	Matrix 256 x 256, 182/180 slices, Voxel size 1.2 x 0.833 x 0.833/ 1 x 0.5 x 0.5
Fitzgerald	Michigan, USA	3T GE Signa	Matrix 256 x 256, 124 slices, Voxel size 1.02 x 1.02 x 1.2 mm
Gruner	Conneticut, USA	3T GE Signa	Matrix 256 x 256, 216 slices, Voxel size 0.976 x 0.976 x 1.0 mm
van den Heuvel	Amsterdam, NLD I	1.5T Siemens Sonata	Matrix 256 x 160, 160 slices, Voxel size 1 x 1 x 1.5 mm
	Amsterdam, NLD II	3T GE Healthcare Signa HDxt	Matrix 256 x 256, 172 slices, Voxel size 1 x 0.977 x 0.977
Hoexter	Sao Paulo, BRA I	1.5T GE Signa	Matrix 256 x 192, 248 slices, Voxel size 0.94 x 0.94 x 0.80 mm
	Sao Paulo, BRA II	3T Philips Achieva	Matrix 256 x 256, 208 slices, Voxel size 1 x 0.977 x 0.977 mm
Huyser	Amsterdam, NLD	3T Philips Intera MR	Matrix 256 x 256, 182 slices, Voxel size 1 x 1 x 1.2 mm
Koch	Munchen, GER	3T Philips Ingenia	Matrix 240 x 240, 170 slices/256 x 256 x 170, Voxel size 1 x 1 x 1 mm
Kwon	Seoul, KOR I	1.5T GE Signa	Matrix 256 x 256, 124 slices, Voxel size 0.82 x 0.82 x 1.5 mm
	Seoul, KOR II	1.5T Siemens Avanto	Matrix 416 x 512, 160-208 slices, Voxel size 0.45 x 0.45 x 0.9 mm
	Seoul, KOR III	3T Siemens Trio	Matrix 256 x 256, 208 slices, Voxel size 1 x 0.977 x 0.977 mm
Lazaro	Barcelona, ESP I	1.5T GE Signa LX	Matrix 256 x 256, 128 slices, Voxel size 1 x 1 x 1 mm
	Barcelona, ESP II	3T Siemens Magneton Tim	Matrix 256 x 256, 240 slices, Voxel size 1 x 1 x 1 mm
Mataix-Cols	Stockholm, SWE	1.5T GE Signa	Matrix 256 x 256, 124 slices, Voxel size 0.94 x 0.94 x 1.5 mm
		1.5T GE Signa HDx	Matrix 256 x 256, 146 slices, Voxel size 1.09 x 1.09 x 1.1 mm
Menchon	Barcelona, ESP	1.5T GE Signa Excite	Matrix 256 x 256, 130 slices, Voxel size 1.2 x 1.2 x 1.2 mm
Nakamae	Kyoto, JPN I	1.5T Philips Gyroscan Intera	Matrix 256 x 256, 130 slices, Voxel size 0.98 x 0.98 x 1.5 mm
	Kyoto, JPN II	3T Philips Gyroscan Intera	Matrix 256 x 256, 170 slices, Voxel size 1.0 x 1.0 x 1.0 mm
Nakao	Fukuoka, JPN	3T Philips Achieva TX	Matrix 240 x 240, 190 slices, Voxel size 1.8 x 1.8 x 1.8 mm
Reddy	Bangalore, IND I	1.5T Siemens Vision	Matrix 256 x 160, 160 slices, Voxel size 0.98 x 0.98 x 1 mm
	Bangalore, IND II	3T Siemens Skyra	Matrix 256 x 256, 192 slices, Voxel size 1.0 x 1.0 x 1.0 mm
	Bangalore, IND III	3T Philips Achieva	Matrix 256 x 256, 165 slices, Voxel size 1.0 x 1.0 x 1.0 mm

Simpson	New York, USA	3T GE Signa	Matrix 256 x 256, 164 slices, Voxel size 0.976 x 0.976 x 1.0 mm
Soreni	Ontario, CAN	3T GE Excite	Matrix 512 x 512, 148 slices, Voxel size 0.468 x 0.469 x 1 mm
Spalletta	Rome, ITA	3T Siemens Allegra	Matrix 256 x 256, 176 slices, Voxel size 1 x 1 x 1 mm
Stein	Cape Town, ZAF	3T Siemens Allegra	Matrix 256 x 256, 160 slices, Voxel size 1.3 x 1.0 x 1.0 mm
Tolin	Conneticut, USA	3T Siemens Allegra	Matrix 64 x 64, 29 slices, Voxel size 1 x 1 x 1 mm
Walitza	Zurich, CHE I	3T Philips Achieva	Matrix 240 x 240, 160 slices, Voxel size 1 x 1 x 1 mm ISO
	Zurich, CHE II	3T Philips Achieva	Matrix 240 x 240, 160 slices, Voxel size 1 x 1 x 1 mm ISO
Wang	Shanghai, CHN	3T Siemens Verio	Matrix 256 x 256, 192 slices, Voxel size 1.0 x 1.0 x 1.0 mm

Table S2. Full meta-analytic results for each mean structure for the pediatric OCD patients versus pediatric controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (pediatric OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,178	0,105	-0,027	to	0,383	1,706	0,088	33,520	284	330
Thalamus	0,239	0,111	0,022	to	0,455	2,156	0,031	35,183	262	310
Caudate	0,046	0,097	-0,143	to	0,236	0,480	0,631	18,272	258	312
Putamen	-0,013	0,106	-0,221	to	0,195	-0,122	0,903	26,188	259	296
Pallidum	-0,124	0,156	-0,430	to	0,183	-0,791	0,429	61,684	224	271
Hippocampus	0,060	0,095	-0,125	to	0,246	0,636	0,525	17,318	276	307
Amygdala	0,142	0,176	-0,203	to	0,487	0,805	0,421	72,614	248	282
Accumbens	-0,104	0,098	-0,297	to	0,089	-1,058	0,290	21,685	266	323
ICV*	-0,050	0,101	-0,248	to	0,149	-0,490	0,624	30,404	287	334

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S3A. Full meta-analytic results for each mean structure for the adult medicated OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (medicated OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	**0,245**	**0,082**	**0,083**	**to**	**0,406**	**2,973**	**$2{,}95\times 10^{-3}$**	**53,793**	**1005**	**622**
Thalamus	-0,112	0,056	-0,222	to	-0,002	-1,997	0,046	4,368	969	576
Caudate	0,095	0,054	-0,011	to	0,201	1,764	0,078	0,000	975	598
Putamen	0,149	0,072	0,008	to	0,291	2,065	0,039	34,163	922	563
Pallidum	**0,287**	**0,066**	**0,159**	**to**	**0,416**	**4,378**	**$1{,}20\times 10^{-5}$**	**20,570**	**907**	**547**
Hippocampus	**-0,294**	**0,070**	**-0,432**	**to**	**-0,156**	**-4,179**	**$2{,}93\times 10^{-5}$**	**35,306**	**982**	**600**
Amygdala	-0,121	0,064	-0,246	to	0,004	-1,904	0,057	23,163	971	608
Accumbens	-0,074	0,071	-0,213	to	0,066	-1,035	0,301	37,986	996	611
ICV*	-0,127	0,053	-0,231	to	-0,023	-2,400	0,016	0,006	1009	623

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S3B. Full meta-analytic results for each mean structure for the adult unmedicated OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (unmedicated OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,063	0,094	-0,121	to	0,247	0,669	0,503	70,145	1079	744
Thalamus	-0,043	0,050	-0,142	to	0,055	-0,865	0,387	0,000	1054	714
Caudate	-0,006	0,063	-0,130	to	0,118	-0,090	0,928	34,080	1066	733
Putamen	-0,071	0,051	-0,171	to	0,029	-1,396	0,163	0,000	998	700
Pallidum	0,089	0,065	-0,039	to	0,216	1,367	0,172	31,869	983	688
Hippocampus	-0,065	0,050	-0,163	to	0,032	-1,313	0,189	0,000	1066	725
Amygdala	-0,109	0,073	-0,251	to	0,034	-1,497	0,134	48,424	1056	726
Accumbens	-0,004	0,050	-0,102	to	0,093	-0,087	0,930	0,000	1068	735
ICV*	0,064	0,049	-0,032	to	0,161	1,304	0,192	0,032	1083	745

Abbreviations: Obsessive Compulsive Disorder (OCD), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S3C. Full meta-analytic results for each mean structure for the adult medicated OCD patients versus unmedicated OCD patients comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (medicated–unmedicated OCD)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of unmedicated patients*	*Number of medicated patients*
Lateral Ventricles	0,216	0,141	-0,061	to	0,492	1,530	0,126	62,183	341	311
Thalamus	0,046	0,083	-0,116	to	0,209	0,559	0,576	0,000	327	300
Caudate	0,078	0,109	-0,136	to	0,293	0,717	0,473	38,031	337	308
Putamen	0,179	0,137	-0,089	to	0,447	1,312	0,190	56,762	325	295
Pallidum	0,201	0,116	-0,027	to	0,428	1,725	0,085	40,540	325	293
Hippocampus	-0,187	0,082	-0,348	to	-0,025	-2,270	0,023	0,000	332	303
Amygdala	0,031	0,116	-0,196	to	0,258	0,266	0,790	42,406	329	303
Accumbens	-0,038	0,116	-0,265	to	0,189	-0,325	0,745	43,833	335	306
ICV*	-0,090	0,081	-0,248	to	0,069	-1,106	0,269	0,000	341	312

Abbreviations: Obsessive Compulsive Disorder (OCD), Intracranial Volume (ICV), Confidence Interval (CI)

***** Controlled for age, sex and scan center

Table S4A. Full meta-analytic results for each mean structure for the pediatric medicated OCD patients versus pediatric controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (pediatric medicated OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,370	0,182	0,012	to	0,727	2,027	0,043	57,463	205	137
Thalamus	0,266	0,173	-0,073	to	0,605	1,539	0,124	52,785	199	136
Caudate	0,182	0,122	-0,056	to	0,421	1,497	0,134	8,709	192	132
Putamen	-0,003	0,125	-0,247	to	0,241	-0,024	0,981	13,627	198	135
Pallidum	-0,146	0,119	-0,378	to	0,087	-1,228	0,220	0,000	173	127
Hippocampus	-0,123	0,115	-0,349	to	0,102	-1,070	0,285	0,004	201	129
Amygdala	0,085	0,317	-0,535	to	0,706	0,269	0,788	84,251	186	122
Accumbens	**-0,316**	**0,113**	**-0,537**	**to**	**-0,094**	**-2,791**	**$5{,}25 \times 10^{-3}$**	**0,000**	**201**	**138**
ICV*	-0,046	0,183	-0,405	to	0,314	-0,249	0,803	59,010	208	139

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

***** Controlled for age, sex and scan center

Table S4B. Full meta-analytic results for each mean structure for the medicated versus unmedicated pediatric OCD comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (medicated–unmedicated pediatric OCD)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of unmedicated patients*	*Number of medicated patients*
Lateral Ventricles	0,268	0,162	-0,050	to	0,586	1,651	0,099	14,848	88	122
Thalamus	-0,137	0,193	-0,516	to	0,241	-0,710	0,478	36,754	84	121
Caudate	0,089	0,227	-0,357	to	0,534	0,389	0,697	53,485	84	117
Putamen	0,065	0,176	-0,279	to	0,409	0,370	0,712	25,117	85	121
Pallidum	0,020	0,157	-0,287	to	0,327	0,127	0,899	0,000	72	112
Hippocampus	-0,288	0,151	-0,584	to	0,008	-1,905	0,057	0,002	83	115
Amygdala	0,004	0,234	-0,454	to	0,462	0,018	0,986	50,918	70	107
Accumbens	-0,060	0,146	-0,346	to	0,226	-0,410	0,682	0,004	87	123
ICV*	-0,179	0,145	-0,463	to	0,104	-1,241	0,214	0,000	89	124

Abbreviations: Obsessive Compulsive Disorder (OCD), Intracranial Volume (ICV), Confidence Interval (CI)

***** Controlled for age, sex and scan center

Table S5A. Full meta-analytic results for each mean structure for the adult OCD patients with a comorbid depression versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (comorbid depression OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	**0,291**	**0,076**	**0,143**	**to**	**0,439**	**3,854**	**$1{,}16 \times 10^{-4}$**	**0,000**	**756**	**246**
Thalamus	-0,225	0,082	-0,385	to	-0,065	-2,751	0,006	0,000	685	205
Caudate	0,007	0,121	-0,230	to	0,245	0,060	0,952	56,864	719	229
Putamen	0,003	0,082	-0,157	to	0,163	0,037	0,971	0,000	631	211
Pallidum	0,228	0,099	0,035	to	0,421	2,317	0,021	25,582	615	203
Hippocampus	**-0,274**	**0,080**	**-0,432**	**to**	**-0,117**	**-3,413**	**$6{,}43 \times 10^{-4}$**	**7,664**	**731**	**237**
Amygdala	-0,185	0,097	-0,374	to	0,005	-1,913	0,056	33,595	711	235
Accumbens	-0,061	0,076	-0,210	to	0,088	-0,805	0,421	0,000	734	243
ICV*	-0,055	0,081	-0,214	to	0,103	-0,684	0,494	12,090	757	246

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

***** Controlled for age, sex and scan center

Table S5B. Full meta-analytic results for each mean structure for the adult OCD patients without a comorbid depression versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (no comorbid depression OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,110	0,077	-0,040	to	0,260	1,439	0,150	67,645	1373	1085
Thalamus	-0,069	0,046	-0,159	to	0,022	-1,489	0,136	10,341	1298	1021
Caudate	0,037	0,042	-0,046	to	0,119	0,873	0,383	0,000	1332	1056
Putamen	0,044	0,058	-0,070	to	0,158	0,758	0,448	37,603	1246	1010
Pallidum	**0,193**	**0,051**	**0,093**	**to**	**0,293**	**3,782**	**$1{,}56 \times 10^{-4}$**	**20,223**	**1225**	**991**
Hippocampus	**-0,156**	**0,048**	**-0,249**	**to**	**-0,063**	**-3,279**	**$1{,}04 \times 10^{-3}$**	**16,835**	**1347**	**1051**
Amygdala	-0,118	0,057	-0,230	to	-0,007	-2,083	0,037	39,533	1326	1062
Accumbens	-0,051	0,049	-0,147	to	0,045	-1,039	0,299	22,179	1355	1068
ICV*	0,003	0,053	-0,101	to	0,108	0,065	0,948	33,633	1377	1087

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S5C. Full meta-analytic results for each mean structure for the adult OCD patients with versus without a comorbid depression comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (comorbid depression– no comorbid depression OCD)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients no comorbid depression*	*Number of patients with comorbid depression*
Lateral Ventricles	0,149	0,110	-0,067	to	0,366	1,355	0,175	45,450	632	246
Thalamus	-0,113	0,085	-0,281	to	0,054	-1,331	0,183	0,002	570	205
Caudate	0,070	0,126	-0,176	to	0,316	0,561	0,575	55,255	603	229
Putamen	-0,030	0,087	-0,201	to	0,141	-0,345	0,730	3,990	564	211
Pallidum	0,072	0,086	-0,097	to	0,241	0,832	0,406	0,000	544	203
Hippocampus	-0,050	0,080	-0,207	to	0,107	-0,624	0,533	0,000	607	237
Amygdala	0,000	0,090	-0,176	to	0,177	0,001	0,999	18,207	612	235
Accumbens	-0,042	0,090	-0,218	to	0,133	-0,472	0,637	17,960	616	243
ICV*	0,001	0,079	-0,154	to	0,155	0,007	0,995	0,004	632	246

Abbreviations: Obsessive Compulsive Disorder (OCD), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S6A. Full meta-analytic results for each mean structure for the adult OCD patients with a comorbid anxiety disorder versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (comorbid anxiety OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,152	0,155	-0,152	to	0,455	0,977	0,329	54,046	419	145
Thalamus	-0,075	0,112	-0,296	to	0,145	-0,670	0,503	0,000	370	114
Caudate	0,226	0,104	0,023	to	0,429	2,177	0,029	0,000	396	137
Putamen	0,096	0,158	-0,213	to	0,406	0,611	0,541	46,925	355	120
Pallidum	0,110	0,117	-0,119	to	0,340	0,941	0,346	6,981	357	116
Hippocampus	-0,067	0,103	-0,270	to	0,135	-0,651	0,515	0,002	400	139
Amygdala	0,021	0,129	-0,232	to	0,274	0,163	0,870	29,970	397	134
Accumbens	-0,022	0,102	-0,222	to	0,179	-0,213	0,831	0,001	406	142
ICV*	0,109	0,111	-0,109	to	0,327	0,982	0,326	14,778	419	145

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S6B. Full meta-analytic results for each mean structure for the adult OCD patients without a comorbid anxiety disorder versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (no comorbid anxiety OCD–HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,140	0,081	-0,019	to	0,299	1,721	0,085	67,503	1164	1011
Thalamus	-0,088	0,056	-0,197	to	0,021	-1,583	0,113	27,721	1103	963
Caudate	0,001	0,044	-0,086	to	0,088	0,027	0,979	0,009	1143	989
Putamen	-0,023	0,045	-0,111	to	0,066	-0,501	0,616	0,005	1087	966
Pallidum	**0,167**	**0,059**	**0,051**	**to**	**0,283**	**2,827**	**$4{,}70 \times 10^{-3}$**	**33,462**	**1064**	**943**
Hippocampus	**-0,199**	**0,052**	**-0,301**	**to**	**-0,096**	**-3,790**	**$1{,}51 \times 10^{-4}$**	**22,724**	**1150**	**990**
Amygdala	-0,143	0,053	-0,246	to	-0,040	-2,720	0,007	22,810	1125	996
Accumbens	-0,070	0,050	-0,167	to	0,027	-1,406	0,160	15,861	1150	995
ICV*	-0,029	0,062	-0,150	to	0,092	-0,474	0,635	44,221	1168	1013

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S6C. Full meta-analytic results for each mean structure for the adult OCD patients with versus without a comorbid anxiety disorder comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (comorbid anxiety– no comorbid anxiety OCD)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients no comorbid anxiety*	*Number of patients with comorbid anxiety*
Lateral Ventricles	-0,066	0,276	-0,606	to	-0,606	-0,240	0,810	72,769	319	83
Thalamus	-0,019	0,160	-0,332	to	-0,332	-0,121	0,904	0,001	282	57
Caudate	0,186	0,143	-0,094	to	-0,094	1,304	0,192	0,000	304	78
Putamen	0,049	0,147	-0,239	to	-0,239	0,334	0,738	0,000	297	72
Pallidum	-0,105	0,151	-0,401	to	-0,401	-0,697	0,486	0,000	284	69
Hippocampus	0,221	0,143	-0,059	to	-0,059	1,549	0,121	0,000	309	79
Amygdala	0,387	0,263	-0,129	to	-0,129	1,471	0,141	68,139	315	78
Accumbens	0,053	0,168	-0,276	to	-0,276	0,317	0,752	27,951	312	82
ICV*	**0,412**	**0,147**	**0,124**	**to**	**0,124**	**2,802**	**$5{,}08 \times 10^{-3}$**	**8,133**	**319**	**83**

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S7A. Full meta-analytic results for each mean structure for the adult early onset OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (early onset OCD – HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,101	0,069	-0,035	to	0,237	1,458	0,145	45,058	1434	623
Thalamus	-0,009	0,051	-0,109	to	0,091	-0,176	0,861	0,000	1355	564
Caudate	0,108	0,050	0,010	to	0,206	2,157	0,031	0,000	1392	600
Putamen	0,084	0,056	-0,026	to	0,195	1,490	0,136	11,458	1304	564
Pallidum	**0,251**	**0,068**	**0,118**	**to**	**0,385**	**3,684**	**$2{,}30 \times 10^{-4}$**	**34,821**	**1280**	**551**
Hippocampus	-0,078	0,068	-0,210	to	0,055	-1,145	0,252	40,927	1408	600
Amygdala	-0,094	0,053	-0,197	to	0,009	-1,787	0,074	7,456	1386	605
Accumbens	-0,047	0,050	-0,144	to	0,051	-0,942	0,346	0,000	1414	612
ICV*	0,026	0,055	-0,081	to	0,133	0,471	0,638	15,355	1437	625

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S7B. Full meta-analytic results for each mean structure for the adult late onset OCD patients versus controls comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (late onset OCD – HC)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of controls*	*Number of patients*
Lateral Ventricles	0,143	0,063	0,020	to	0,266	2,280	0,023	39,618	1434	793
Thalamus	-0,149	0,108	-0,360	to	0,062	-1,385	0,166	78,203	1355	742
Caudate	-0,002	0,047	-0,093	to	0,090	-0,035	0,972	0,000	1392	772
Putamen	-0,056	0,093	-0,238	to	0,125	-0,608	0,543	69,002	1304	734
Pallidum	0,120	0,064	-0,006	to	0,246	1,865	0,062	35,391	1280	723
Hippocampus	**-0,181**	**0,054**	**-0,286**	**to**	**-0,075**	**-3,357**	**$7{,}87 \times 10^{-4}$**	**18,818**	**1408**	**772**
Amygdala	-0,107	0,068	-0,240	to	0,025	-1,584	0,113	46,389	1386	775
Accumbens	-0,035	0,046	-0,126	to	0,056	-0,759	0,448	0,000	1414	780
ICV*	-0,041	0,048	-0,134	to	0,053	-0,852	0,394	4,280	1437	793

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S7C. Full meta-analytic results for each mean structure for the adult late onset versus early onset OCD patients comparison, controlling for age, sex, scan center, and ICV. Adjusted Cohen's d is reported.

	Cohen's d (late –early onset OCD)	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of early onset patients*	*Number of late onset patients*
Lateral Ventricles	0,038	0,052	-0,064	to	0,141	0,733	0,464	0,000	623	793
Thalamus	-0,091	0,056	-0,202	to	0,019	-1,618	0,106	5,531	564	742
Caudate	-0,138	0,056	-0,247	to	-0,029	-2,480	0,013	6,761	600	772
Putamen	-0,081	0,055	-0,189	to	0,028	-1,459	0,145	0,000	564	734
Pallidum	-0,091	0,074	-0,236	to	0,055	-1,222	0,222	37,490	551	723
Hippocampus	-0,078	0,060	-0,195	to	0,039	-1,300	0,194	16,703	600	772
Amygdala	-0,014	0,068	-0,147	to	0,118	-0,211	0,833	33,651	605	775
Accumbens	-0,021	0,065	-0,148	to	0,106	-0,326	0,745	27,944	612	780
ICV*	-0,060	0,052	-0,163	to	0,042	-1,150	0,250	0,000	625	793

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S8A. Full meta-analytic results for each mean structure for the association between age of onset and brain volumes within adult OCD patients, controlling for age, sex, scan center, and intracranial volume. Correlation coefficient Pearsons *r* is reported.

	Pearson's r	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients*
Lateral Ventricles	-0,006	0,027	-0,060	to	0,047	-0,231	0,817	4,342	1415
Thalamus	-0,023	0,037	-0,097	to	0,050	-0,621	0,534	42,229	1304
Caudate	-0,061	0,027	-0,113	to	-0,008	-2,269	0,023	0,008	1370
Putamen	-0,009	0,035	-0,077	to	0,059	-0,254	0,800	32,859	1296
Pallidum	-0,056	0,054	-0,162	to	0,050	-1,032	0,302	73,771	1272
Hippocampus	-0,013	0,028	-0,068	to	0,041	-0,485	0,628	4,396	1371
Amygdala	0,040	0,027	-0,013	to	0,092	1,488	0,137	0,000	1378
Accumbens	0,026	0,034	-0,040	to	0,092	0,764	0,445	33,090	1390
ICV*	-0,010	0,027	-0,064	to	0,043	-0,373	0,709	5,506	1416

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S8B. Full meta-analytic results for each mean structure for the association between age of onset and brain volumes within pediatric OCD patients, controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

	Pearson's r	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients*
Lateral Ventricles	-0,104	0,115	0,115	to	0,120	-0,910	0,363	73,689	268
Thalamus	-0,127	0,067	0,067	to	0,004	-1,907	0,057	12,371	250
Caudate	-0,041	0,093	0,093	to	0,143	-0,434	0,665	55,470	251
Putamen	-0,073	0,104	0,104	to	0,132	-0,699	0,485	62,938	236
Pallidum	-0,088	0,082	0,082	to	0,073	-1,067	0,286	30,363	212
Hippocampus	0,021	0,067	0,067	to	0,153	0,308	0,758	10,261	248
Amygdala	-0,097	0,066	0,066	to	0,032	-1,474	0,141	0,017	222
Accumbens	-0,159	0,082	0,082	to	0,001	-1,947	0,051	43,555	262
ICV*	-0,064	0,070	0,070	to	0,073	-0,914	0,361	22,315	270

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S9A. Full meta-analytic results for each mean structure for the association between disease duration and brain volumes within adult OCD patients, controlling for age, sex, scan center, and intracranial volume. Correlation coefficient Pearsons *r* is reported.

	Pearson's r	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients*
Lateral Ventricles	0,007	0,028	-0,049	to	0,062	0,238	0,812	9,897	1415
Thalamus	0,022	0,038	-0,052	to	0,096	0,584	0,559	43,706	1304
Caudate	0,069	0,029	0,013	to	0,125	2,417	0,016	9,859	1370
Putamen	0,007	0,036	-0,063	to	0,077	0,200	0,842	36,018	1296
Pallidum	0,072	0,047	-0,021	to	0,165	1,526	0,127	64,415	1272
Hippocampus	0,005	0,028	-0,051	to	0,060	0,171	0,864	7,681	1371
Amygdala	-0,037	0,027	-0,089	to	0,016	-1,379	0,168	0,000	1378
Accumbens	-0,018	0,033	-0,084	to	0,048	-0,538	0,590	32,677	1390
ICV*	0,014	0,026	-0,038	to	0,066	0,532	0,595	0,005	1416

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S9B. Full meta-analytic results for each mean structure for the association between disease duration and brain volumes within pediatric OCD patients, controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

	Pearson's r	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients*
Lateral Ventricles	0,093	0,115	-0,132	to	0,318	0,812	0,417	73,702	268
Thalamus	0,128	0,067	-0,004	to	0,259	1,896	0,058	14,211	250
Caudate	0,026	0,097	-0,165	to	0,217	0,264	0,792	59,487	251
Putamen	0,052	0,121	-0,185	to	0,290	0,433	0,665	73,700	236
Pallidum	0,079	0,083	-0,083	to	0,241	0,951	0,342	31,211	212
Hippocampus	-0,023	0,067	-0,154	to	0,109	-0,336	0,737	9,823	248
Amygdala	0,087	0,066	-0,042	to	0,216	1,319	0,187	0,007	222
Accumbens	0,165	0,081	0,006	to	0,324	2,033	0,042	42,944	262
ICV*	0,060	0,069	-0,076	to	0,195	0,860	0,390	20,195	270

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI)

* Controlled for age, sex and scan center

Table S10. Full meta-analytic results for each mean structure for the association between symptom severity and brain volumes within OCD patients based on the YBOCS, controlling for age, sex, scan center, and intracranial volume. Correlation coefficient Pearsons *r* is reported.

	Pearson's r	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients*
Lateral Ventricles	0,046	0,027	-0,007	to	0,098	1,684	0,092	3,687	1419
Thalamus	-0,050	0,037	-0,123	to	0,022	-1,354	0,176	40,978	1309
Caudate	-0,052	0,028	-0,108	to	0,003	-1,843	0,065	8,237	1371
Putamen	-0,065	0,027	-0,119	to	-0,011	-2,374	0,018	0,000	1306
Pallidum	-0,035	0,035	-0,103	to	0,033	-1,005	0,315	30,374	1276
Hippocampus	-0,066	0,030	-0,124	to	-0,008	-2,218	0,027	15,668	1375
Amygdala	-0,036	0,033	-0,100	to	0,028	-1,110	0,267	28,320	1383
Accumbens	-0,019	0,027	-0,073	to	0,034	-0,718	0,473	2,997	1395
ICV	-0,056	0,033	-0,122	to	0,009	-1,684	0,092	33,364	1421

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI), Yale Brown Obsessive Compulsive Scale (YBOCS)

***** Controlled for age, sex and scan center

Table S11. Full meta-analytic results for each mean structure for the association between symptom severity and brain volumes within pediatric OCD patients based on the CYBOCS, controlling for age, sex, scan center, and ICV. Correlation coefficient Pearsons *r* is reported.

	Pearson's r	*Standard error*	*95% CI*			*% Difference*	*P-value*	*I2*	*Number of patients*
Lateral Ventricles	0,072	0,057	-0,039	to	0,184	1,269	0,204	0,000	307
Thalamus	0,025	0,059	-0,090	to	0,140	0,430	0,667	0,000	291
Caudate	0,099	0,067	-0,032	to	0,230	1,483	0,138	23,750	292
Putamen	0,055	0,082	-0,105	to	0,215	0,674	0,500	46,549	286
Pallidum	0,008	0,062	-0,114	to	0,130	0,128	0,898	0,000	257
Hippocampus	0,093	0,066	-0,036	to	0,222	1,410	0,159	18,850	287
Amygdala	0,113	0,076	-0,035	to	0,261	1,496	0,135	35,095	260
Accumbens	-0,059	0,058	-0,172	to	0,055	-1,015	0,310	3,896	302
ICV	-0,073	0,073	-0,216	to	0,070	-1,005	0,315	38,830	311

Abbreviations: Obsessive Compulsive Disorder (OCD), Healthy Control (HC), Intracranial Volume (ICV), Confidence Interval (CI), Children's Yale Brown Obsessive Compulsive Scale (CYBOCS)

***** Controlled for age, sex and scan center

Table S12. Full results from the moderator analyses in the adult samples of mean age, field strength of scanner, percent of medicated patients, percent of patients taking SSRIs, percent of patients taking antipsychotics, percent comorbid anxiety, and percent comorbid depression. The table is split into two parts to fit on a single page for easier comparison.

	Mean age			*Field strength*			*Percent with a comorbid depression*			*Percent with a comorbid anxiety disorder*		
	Beta	*Standard error*	*P-value*	*Beta*	*Standard error*	*P-value*	*Beta*	*Standard error*	*P-value*	*Beta*	*Standard error*	*P-value*
Lateral Ventricles	1.02×10^{-2}	0.015	0.498	1.21×10^{-1}	0.129	0.347	1.49×10^{-3}	0.007	0.826	1.49×10^{-3}	0.007	0.826
Thalamus	-2.01×10^{-2}	0.010	0.036	$-3.56E \times 10^{-2}$	0.090	0.692	-1.07×10^{-2}	0.005	0.036	-1.07×10^{-2}	0.005	0.036
Caudate	-1.93×10^{-2}	0.009	0.041	3.99×10^{-2}	0.079	0.612	-9.44×10^{-3}	0.005	0.041	-9.44×10^{-3}	0.005	0.041
Putamen	1.69×10^{-2}	0.010	0.104	2.43×10^{-2}	0.093	0.793	5.32×10^{-3}	0.005	0.314	5.32×10^{-3}	0.005	0.314
Pallidum	5.63×10^{-3}	0.012	0.650	4.85×10^{-2}	0.106	0.647	-2.47×10^{-3}	0.006	0.688	-2.47×10^{-3}	0.006	0.688
Hippocampus	-1.43×10^{-2}	0.012	0.215	-9.85×10^{-3}	0.100	0.922	1.22×10^{-3}	0.005	0.816	1.22×10^{-3}	0.005	0.816
Amygdala	-1.69×10^{-4}	0.012	0.989	3.60×10^{-2}	0.105	0.731	2.07×10^{-3}	0.006	0.726	2.07×10^{-3}	0.006	0.726
Accumbens	6.87×10^{-4}	0.010	0.945	1.81×10^{-2}	0.084	0.829	7.30×10^{-3}	0.005	0.118	7.30×10^{-3}	0.005	0.118
ICV	-2.63×10^{-2}	0.011	0.012	4.33×10^{-2}	0.101	0.667	-3.59×10^{-3}	0.006	0.523	-3.59×10^{-3}	0.006	0.523

	Percent on SSRIs			*Percent on anitpsychotics*		
	Beta	*Standard error*	*P-value*	*Beta*	*Standard error*	*P-value*
Lateral Ventricles	2.77×10^{-3}	0.005	0.542	-2.03×10^{-3}	0.005	0.703
Thalamus	-7.27×10^{-3}	0.003	0.027	-1.61×10^{-3}	0.004	0.712
Caudate	3.71×10^{-4}	0.003	0.910	-2.21×10^{-3}	0.004	0.563
Putamen	-1.97×10^{-4}	0.005	0.967	-1.03×10^{-3}	0.006	0.856
Pallidum	-2.01×10^{-3}	0.004	0.623	6.26×10^{-3}	0.005	0.179
Hippocampus	-1.75×10^{-3}	0.005	0.713	-9.47×10^{-3}	0.005	0.037
Amygdala	-2.43×10^{-3}	0.005	0.604	1.28×10^{-3}	0.005	0.981
Accumbens	-2.80×10^{-3}	0.005	0.544	-6.45×10^{-3}	0.005	0.233
ICV	-4.45×10^{-3}	0.003	0.168	1.02×10^{-3}	0.004	0.778

Abbreviations: Intracranial Volume (ICV)

Table S13. Full results from the moderator analyses in the pediatric samples of mean age and field strength of scanner.

	Mean age			*Field strength*		
	Beta	*Standard error*	*P-value*	*Beta*	*Standard error*	*P-value*
Lateral Ventricles	-2.29E-02	0.121	0.849	1.04×10^{-1}	0.354	0.769
Thalamus	1.70×10^{-3}	0.111	0.125	8.98×10^{-3}	0.369	0.981
Caudate	2.35×10^{-2}	0.111	0.833	7.94×10^{-2}	0.322	0.805
Putamen	-9.10×10^{-2}	0.126	0.470	-3.15×10^{-1}	0.332	0.343
Pallidum	2.34×10^{-1}	0.178	0.187	1.63×10^{-1}	0.534	0.760
Hippocampus	-1.74×10^{-1}	0.097	0.073	-3.47×10^{-1}	0.297	0.243
Amygdala	-3.34×10^{-1}	0.151	0.027	-7.29×10^{-1}	0.547	0.182
Accumbens	-2.18×10^{-1}	0.098	0.026	-4.85×10^{-1}	0.296	0.101
ICV	-1.18×10^{-1}	0.106	0.263	1.56×10^{-1}	0.357	0.965

Abbreviations: Intracranial Volume (ICV)

Table S14. Significant ($P < 5.6 \times 10^{-3}$) results of the adult mega-analysis of subcortical brain volumes. The standardized beta is reported in case of group comparisons; Pearson's correlation coeffiecent *r* is reported in case of continuous variables. Analyses are controlled for age, sex, scan center and ICV.

	# subjects n=2967		**Lateral Ventricle**		Thalamus	Caudate	**Putamen**		**Pallidum**		**Hippocampus**		Amygdala	Accumbens	ICV
	OCD	HC	*β*	*P-value*			*β*	*P-value*	*β*	*P-value*	*β*	*P-value*			
OCD vs HC	1495	1472	0.06	5.86×10^{-4}	*n.s.*	*n.s.*		*n.s.*	0.06	1.02×10^{-4}	-0.05	4.66×10^{-4}	*n.s.*	*n.s.*	*n.s.*
Med vs HC	654	1472	0.11	1.15×10^{-7}	*n.s.*	*n.s.*		*n.s.*	0.09	5.50×10^{-7}	-0.09	1.99×10^{-7}	*n.s.*	*n.s.*	*n.s.*
Non-med vs Med	821	654	0.10	1.06×10^{-3}	*n.s.*	*n.s.*		*n.s.*		*n.s.*		*n.s.*	*n.s.*	*n.s.*	*n.s.*
Early-onset vs HC	626	1472		*n.s.*	*n.s.*	*n.s.*		*n.s.*	0.08	8.42×10^{-6}		*n.s.*	*n.s.*	*n.s.*	*n.s.*
Late-onset vs HC	794	1472	0.06	1.30×10^{-3}	*n.s.*	*n.s.*		*n.s.*		*n.s.*	-0.06	8.23×10^{-5}	*n.s.*	*n.s.*	*n.s.*
							Pearson's r								
Disease Severity (YBOCS)	1455			*n.s.*	*n.s.*	*n.s.*	-0.08	3.38×10^{-3}		*n.s.*		*n.s.*	*n.s.*	*n.s.*	*n.s.*
			β												
No Lifetime Anxiety vs HC	1002	1472	0.07	1.71×10^{-4}	*n.s.*	*n.s.*		*n.s.*	0.05	9.12×10^{-4}	-0.06	1.45×10^{-4}	*n.s.*	*n.s.*	*n.s.*
Lifetime Depression vs HC	325	1472	0.09	5.31×10^{-5}	*n.s.*	*n.s.*		*n.s.*		*n.s.*	-0.07	2.75×10^{-4}	*n.s.*	*n.s.*	*n.s.*
No Lifetime Depression vs HC	1041	1472	0.06	1.94×10^{-3}	*n.s.*	*n.s.*		*n.s.*	0.07	4.74×10^{-6}	-0.05	9.71×10^{-4}	*n.s.*	*n.s.*	*n.s.*

Abbreviations: Obsessive-Compulsive Disorder (OCD), Healthy Control (HC), Medicated OCD patients (Med), Unmedicated OCD patients (No Med), Early-onset OCD patients (Early-onset), Late-onset OCD patients (Late-onset), Yale Brown Obsessive Compulsive Scale (YBOCS), OCD patients without a comorbid lifetime anxiety diagnosis (No Lifetime Anxiety), OCD patients with a comorbid lifetime depression diagnosis (Lifetime Depression), OCD patients without a comorbid lifetime depression diagnosis (No Lifetime Depression), Intracranial Volume (ICV).

Table S15. Significant ($P < 5.6 \times 10^{-3}$) results of the pediatric mega-analysis of subcortical brain volumes. The standardized beta is reported. Analyses are controlled for age (or age squared if listed), sex, scan center and ICV.

	#subjects n=622		**Lateral Ventricle**		**Thalamus**		Caudate	Putamen	Pallidum	Hippocampus	Amygdala	Accumbens	ICV
	OCD	HC											
			β	*P-value*	*β*	*P-value*							
OCD vs HC	335	287		*n.s.*	0.08	5.68×10^{-3}	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*
OCD vs HC (ageSQ)	335	287		*n.s.*	0.08	5.47×10^{-3}	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*
Med vs HC	170	287	0.14	1.97×10^{-3}		*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*
Med vs No Med	170	159	0.19	1.59×10^{-3}		*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*
No Lifetime Anxiety vs HC	109	287		*n.s.*	0.11	9.60×10^{-4}	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*
No Lifetime Depression vs HC	34	287		*n.s.*	0.09	2.16×10^{-3}	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*	*n.s.*

Abbreviations: Obsessive-Compulsive Disorder (OCD), Healthy Control (HC), Age Squared (ageSQ), Medicated OCD patients (Med), Unmedicated OCD patients (No Med), OCD patients without a comorbid lifetime anxiety diagnosis (No Lifetime Anxiety), OCD patients without a comorbid lifetime depression diagnosis (N