Obsessive-Compulsive Symptoms among Children in the Adolescent Brain and Cognitive Development Study: Clinical, Cognitive, and Brain Connectivity Correlates

Supplementary Information

Supplementary Methods

Information on several covariates and analyses of interest is provided here.

Of the baseline sample, n=8 were missing CBCL OCS sum scores and T-scores could not be calculated for one additional child missing sex information.

Income. Income was categorized as an ordinal variable across ten bins (1: <$5,000; 2: $5,000-11,999; 3: $12,000-15,999; 4: $16,000-24,999; 5: $25,000-34,999; 6: $35,000-49,999; 7: $50,000-74,999; 8: $75,000-99,999; 9: $100,000-199,999; 10: >$200,000).

Puberty. A composite score for pubertal development was created by averaging across responses on three items related to general development and two sex-specific items and then averaging across parent- and child-report (range=1-4). These summary scores were averaged across parent and child report.

Child Medication Use. Follow-up tests examined child medication use as derived in prior work (Pagliaccio et al., 2019). This included hand coding of medication types: SSRI, SNRI, SARI, NDRI, MAOI, tricyclic antidepressants, tetracyclic antidepressants, anxiolytics, antipsychotics, sedatives, anticonvulsants, lithium, or barbiturates. Herein, we examine a binary variable for the presence/absence of child medication use.

R Code: Sample R code for certain analyses is included below. Generally, all text files should be imported setting 999 values to NA. Sample code for the main linear mixed-effects model analyses examining associations of OCS with subcortical volumes is presented.

```
# Recode parental marital status
pdem02$demo_prnt_marital_v2[pdem02$demo_prnt_marital_v2 %in% c(1,6)] = 1
pdem02$demo_prnt_marital_v2[pdem02$demo_prnt_marital_v2 %in% 2:5] = 0
pdem02$demo_prnt_marital_v2[pdem02$demo_prnt_marital_v2 == 777] = NA

# Recode parental education
pdem02$demo_prnt_ed_v2[pdem02$demo_prnt_ed_v2 %in% 1:14] = 0
pdem02$demo_prnt_ed_v2[pdem02$demo_prnt_ed_v2 %in% 15:21] = 1
pdem02$demo_prnt_ed_v2[pdem02$demo_prnt_ed_v2 %in% 777] = NA

# Create 8-item OCS sum score
abcd_cbcl01$CBCL_OCS <- rowSums(abcd_cbcl01[,c("cbcl_q09_p", "cbcl_q31_p", "cbcl_q32_p, "cbcl_q52_p", "cbcl_q66_p",
"cbcl_q84_p", "cbcl_q85_p", "cbcl_q112_p")])

# Main Analysis Example
# Linear Mixed Effects Model Predicting Right Thalamus Volume
fit <- lme4::lmer(data=ABCD, smri_vol_scs_thalamusrh ~ smri_vol_scs_intracranialv  + interview_age + demo_sex_v2 +
demo_race_a_p___10 + demo_race_a_p___11 + demo_ethn_v2 + demo_prnt_marital_v2 + demo_prnt_ed_v2+
demo_comb_income_v2 + Puberty + nihtbx_totalcomp_agecorrected + anthroheightcalc + cbcl_scr_07_ocd_t + (1|
mri_info_deviceserialnumber/rel_family_id), na.action = "na.exclude")
summary(fit)
sjstats::anova_stats(fit) # extract partial eta squared
```

LME. All models included random effects for family nested within acquisition site (or MRI device serial number for brain analyses) accounting for multi-level clustering of siblings within families and participants within site/scanner. All models included fixed-effects covariates for age, sex, race (White or not; Black or not), ethnicity (Hispanic or not), total family income (ten ordinal bins; see above), highest parental education (completing at least some college or not), parental marital status (married/living together or not), pubertal status, and NIH Toolbox Total Cognition T-scores (except when cognition was the outcome). Structural analyses additionally covaried child height (accounting for overall body size/development), T1 image signal-to-noise (whole-brain intensity mean/SD), and intracranial volume (ICV) in subcortical analyses. DTI analyses additionally covaried mean FD during acquisition. RSFC analyses additionally covaried number of frames retained after processing.

CFA. A confirmatory factor analysis was run in *lavaan* to assess the unidimensional/one-factor nature of the CBCL OCS subscale. Code is denoted below. Scores on the individual 8 items are loaded onto a single factor. The loadings for all items are freed and modelled as ordered/ordinal (0, 1, 2) variables. The OCS latent variable was normed to a mean of 0 and SD of 1. A weighted least square mean and variance adjusted (WLSMV) estimator was used.

```
# CFA – declare and test model
ocs8 <- 'ocs =~ NA*cbcl_q09_p + cbcl_q31_p + cbcl_q32_p + cbcl_q52_p + cbcl_q66_p + cbcl_q84_p +
                    cbcl_q85_p + cbcl_q112_p
          ocs ~~ 1*ocs
          ocs ~ 0'
fit8 <- lavaan::cfa(ocs8, data=ABCD, estimator="WLSMV", ordered=c("cbcl_q09_p", "cbcl_q31_p", "cbcl_q32_p, "cbcl_q52_p",
"cbcl_q66_p", "cbcl_q84_p", "cbcl_q85_p", "cbcl_q112_p")])
summary(fit8, fit.measures=TRUE, standardized=TRUE)
```

SOLAR. Heritability estimates were derived from a standard polygenic model in SOLAR, with and without covariates. A pedigree file was created based on participants' family ID (rel_family_id), i.e. dummy coding a mother and father ID for each participant, which were matched for siblings but separate for all unrelated individuals. SOLAR then created cases for all these founder individuals, but no OCS data was associated with them. All models examined CBCL OCS T-scores as the trait of interest.

Example code:

load pedigree OCS_pedigree.csv

load phenotype OCS_phenotype.csv

model new

trait CBCL_OCS_T

polygenic

Follow-up tests. A number of follow-up tests were run to confirm the main text results. This included re-running them main LME models with extra covariates, e.g. CBCL ADHD T-scores or KSADS ADHD diagnosis. We also examined effects controlling for symptom severity (0-3) of autism spectrum disorder (ASD) based on the three items available from the abbreviated K-SADS module: poor eye contact, unusual body movements, strict routines.

Five Group Follow-up: Additionally, we examined several groupings of participants to probe specific questions. First, we created two five-level categorical factors (one for lifetime, one for current diagnoses) to group participants with a KSADS diagnosis of OCD (but not lifetime ADHD), of ADHD (but not lifetime OCD), of comorbid ADHD and OCD, of any other diagnosis, or children with no lifetime diagnoses. For both variables, cases with an OCD diagnosis that did not meet full criteria were dropped (OCRD subthreshold), i.e. they were not treated as healthy or clinical controls or allowed in the ADHD only group. For the current diagnosis grouping, cases with only past OCD or ADHD (but not current) were dropped.

```
# Sample R code to create 5-level lifetime groupings, variables relabeled for clarity
ABCD$KSADS_OCDvADHD <- case_when(
  ABCD$N_Dx==0 & ABCD$KSADS_P_OCD_NOS==F ~ "HealthyControl",
  ABCD$KSADS_P_OCD==F & ABCD$KSADS_ADHD==F & ABCD$KSADS_P_OCD_SUB==0 ~ "ClinicalControl",
  ABCD$KSADS_P_OCD==F & ABCD$KSADS_ADHD==T & ABCD$KSADS_P_OCD_SUB==0 ~ "ADHDonly",
  ABCD$KSADS_P_OCD==T & ABCD$KSADS_ADHD==F ~ "OCDonly",
  ABCD$KSADS_P_OCD==T & ABCD$KSADS_ADHD==T ~ "OCD+ADHD")
```

Propensity Matching Follow-up: Additional analyses examined the subsample of participants with OCD (lifetime or current) propensity matched to clinical and healthy control groups. First, we created a temporary dataset that had complete data on all covariates of interest. Next, we removed any siblings of children with OCD that did not have OCD themselves, i.e. allowing siblings in the OCD group (to retain sample size) but not across the OCD and matched groups (to maximize independence). Then, we used the *MatchIt::matchit* function in R with the nearest neighbor method using the default logistic regression technique to estimate distance. Specifically, we matched cases with OCD to an equal number of children with no diagnoses (healthy controls) based on age, sex, and acquisition site. After this, we matched the children with OCD to a non-overlapping set of children with any other diagnoses based on age, sex, site, and the presence of any depressive disorder, any anxiety disorder, and ADHD. Follow-up analyses examined these small subsets of children using a three-level categorical factor variable for group (OCD, healthy, clinical control). We did not examine these as paired observations based on matching. Additionally, we examined propensity matched samples of unmedicated children using these same methods.

Supplementary Results

OCD Comorbidity. Table 2 displays rates of lifetime K-SADS diagnoses. Though PTSD showed the greatest differential rate for children with vs. without lifetime OCD ($\chi^2(1)=238.01$, $p<.001$, $OR=6.60$), PTSD was relatively rare overall (1.98%). On the other hand, ADHD was the most common comorbidity among children with OCD (46.04%); as ADHD was also relatively common among children without OCD (18.15%), the magnitude of this difference was lower ($\chi^2(1)=469.92$, $p<.001$, $OR=3.85$).

OCS/OCD In Families. Examining all sets of twins/siblings (excluding cases missing K-SADS diagnoses), 1527 exhibited no OCD diagnoses, 219 were discordant for OCD, and 43 sibling/twin sets were concordant (both diagnosed with OCD). OCS scores did not differ significantly whether the CBCL reporter was the biological mother or not ($b=-0.01$, $t(9595.29)=-0.25$, $p=.80$, $\eta^2_{p<}.001$; 85% of reporters were the biological mother).

OCS Psychometrics and ROC. We confirmed good psychometrics of the 8-item CBCL OCS subscale in the baseline ABCD sample. A one-factor/unidimensional confirmatory factor analysis (*lavaan* package) showed good fit ($\chi^2(20)=1319$, $p<.001$, CFI=.95, TLI=.92, RMSEA=.07, 90% CI=[.07-.08], SRMR=.119). The OCS subscale showed moderate to good internal consistency (*psych* package, standardized Cronbach's alpha & Guttman's Lambda-6 reliability=.71, omega=.87).

Prior studies have identified a cutoff of CBCL OCS sum scores of 5 (on the 8-item subscale) as potentially indicative of or useful in screening for OCD. ROC analyses in the current sample differentiating children with vs. without lifetime OCD based on CBCL OCS scores (N=11,677; AUC=78.1%; Figure S3) indicated a threshold of >1 as optimal in identifying children with a K-SADS OCD diagnosis (specificity=71.55%, sensitivity=72.95%) relative to a threshold of ≥5 (specificity=95.61%, sensitivity=29.96%), per prior literature. This "optimal" threshold was found with convergent results using the Youden's J statistic to maximize distance from the identify line as well as identifying the point closest to perfect sensitivity/specificity. The sum score >1 threshold was equivalent to a T-score >53 threshold. These results were similar examining participants with current OCD (AUC=79.16%) or limiting to participants with OCD ever vs.

children with no diagnoses (N=7,992; AUC=82.92%). Slightly lower discriminability was observed with the 2-item (AUC=74.17%) and 6-item (AUC=77.69%) subscale formulations predicting lifetime OCD diagnosis in the full sample (Figure S3).

The OCS>1 threshold should be interpreted with caution and replicated in future waves of ABCD data as well as other large pediatric samples. Particularly, we note relatively high rates of OCD diagnoses compared to prior epidemiological estimates. This may in part be due to the reliance on parent-report only from the computerized K-SADS. These elevated OCD rate may in turn lead to a lower OCS threshold in ROC analyses, i.e. OCS>1 vs. the ≥5 threshold from prior work. Thus, this OCS>1 threshold should be interpreted with caution and replicated in future work.

SOLAR. The initial polygenic model only included CBCL OCS t-scores as the trait of interest and no covariates (n=11864) and converged on a highly significant h2r (heritability) estimate of 73.74% (p<.001) and thus an e2 (environment) estimate of 25.26%. The residual kurtosis was noted as being too high (4.84) and thus we used the *inormal* function to impose an inverse normal transformation on the OCS scores, as suggested. The polygenic model on the transformed scores, yielded similar results: h2r=69.06%, e2=30.94%. Next, we tested a model examining these transformed scores and including the main analysis covariates (age, sex, race, ethnicity, parental marital status, parental education, income, puberty, cognition, and site) and this again yielded similar results: h2r=68.74%, e2=31.26%.

Parental/Familial Factors: Questionnaires included measure of parent's active monitoring of their child's whereabouts, child perceptions of caregiver warmth, acceptance, and responsiveness, and child- and parent-report of openly expressed family conflict. Parents/caregivers also rated their own functioning using the Adult Self-Report (ASR); we examined the OCS subscale from the ASR. Parental self-report OCS (ASR) strongly related to parent-report of child OCS (CBCL; n=10664, b=0.41, t(8685.39)=44.58, p<.001, η^2_p=0.20), controlling for our standard LME covariates. In separate LME models, higher OCS scores associated with lower parental monitoring (n=10650, b=-0.04, t(10574.80)=-3.93, p<.001, η^2_p=0.002), lower parental acceptance behavior (for a second parent/caregiver if available [n=9886, b=-0.05, t(9795.07)=-5.05, p<.001 , η^2_p=0.004], but not for the parent/caregiver who was assessed with the child [n=10639, b=-0.02, t(10575.58)=-1.56, p=.12, η^2_p<.001]), and

increased family conflict (both child-reported [n=10647, b=0.04, t(10564.84)=4.47, p<.001, η^2_p=0.003] and parent-reported [n=10664, b=0.19, t(8692.80)=19.9, p<.001, η^2_p=0.05]).

Overall, OCS associated with familial/parental factors, including a strong correlation between parent/guardian's report of their own OCS and their report of their child's symptoms. Yet, it is difficult to disentangle method variance (i.e. examining ASR and CBCL from the same reporter) from potential familial transmission. Nonetheless, twin/sibling analysis indicate a significant majority of OCS variance due to heritable/familial factors relative to individual environment, as in prior work. Heritability estimates can be further refined in the future work when greater genetic relatedness information is available from ABCD. Finally, mixed evidence relates OCS to parenting in young adults. Herein, higher OCS scores related to lower ratings of parental monitoring (knowing the child's whereabouts and engaging regularly at home) and acceptance behavior (giving love, comfort, communication, and time), though effects were quite small. Stronger associations were detected between OCS and family conflict, particularly parent-reported. Future longitudinal ABCD analyses could aim to parse whether parental/familial factors are potential causes or consequences of OCS. Additionally, family conflict may be one potential indicator of impairment and reduced quality of life often associated with OCS.

Cognition. Of the full baseline sample, n=10,849 (91.35%) had NIH Toolbox T-scores and 9,764 had all relevant covariates and CBCL OCS scores. Focusing on the NIH Total Cognition T-scores, follow-up tests indicated significant positive associations with OCS when controlling for medication and the presence of other diagnoses (depressive, anxious, or ADHD diagnoses), for CBCL ADHD and externalizing or internalizing scores, and for CBCL ADHD and the count of current KSADS ASD symptoms. Children with lifetime (or current only) OCD also exhibited higher scores than those with ADHD only (b=0.32, t=7.25, p<.001) or those with ADHD and OCD (b=0.21, t=3.74, p<.001) in five group analyses. Similar OCD > ADHD group differences were noted for the DCCST, Processing, Working Memory, Sequence, and Reading scores (t>3.15, p<.05). Similar OCD > OCD + ADHD group differences were noted for the Flanker, Working Memory, Processing, and Reading scores (t>1.98, p<.05).

Brain Structure. Of the full baseline sample, n=10,534 (88.67%) had T1 structural data passing all ABCD QC criteria and 9,475 of these had all relevant covariates and CBCL OCS scores. Based on recommendations from the ABCD Study, QC exclusions were poor quality T1

scans (iqc_t1_ok_ser >0), FreeSurfer outputs not passing manual QC (fsqc_qc = 1), and any incidental findings noted from neuroradiological read of the structural MRI images (mrif_score = 1 | mrif_score = 2).

Neither OCS nor lifetime OCD associated significantly with total ICV (Table S9) or T1 SNR (t>-1.73, p>.08, $\eta^2_{p<}$.001). Follow-up tests further probed potential differences in thalamic and hippocampal volumes (left/right average) given prior results from the ENIGMA consortium. Specifically, in the subsample with good structural data and all covariates, we examined differences between healthy cases with no lifetime diagnoses (n=5,480) and cases with lifetime or current OCD but not ADHD (n=464/n=369), ADHD but not OCD (n=1455/n=586), and comorbid OCD and ADHD (n=375/n=182). In LME models as in the main text, children with current OCD showed larger thalamic volumes than those with current OCD and ADHD (n=7755, b=0.12, t(7507.10)=2.17, p=.03). Children with lifetime OCD showed smaller hippocampal volumes than those with OCD and ADHD (n=8870, b=-0.10, t(8342.85)=-2.06, p=.04). No significant effects were observed in propensity matched group comparisons. No significant associations were found with CBCL Total T-scores.

Though cortical thickness findings did not pass FDR correction for multiple comparisons, we further probed findings relating greater OCS to thinner right mid-ACC and thicker right IFG pars opercularis. Findings in the ACC remained trend-level significant while the IFG remained p<.05 significant when controlling for CBCL or KSADS ADHD. No differences were noted in these five group models but the right IFG was thicker among children with current OCD than matched healthy controls in propensity matched models (n=413, b=0.25, t(390.42)=2.00, p=.04). Also note that the left middle-ACC did show greater thickness in children with lifetime OCD than any of the other four groups (all t>1.77, all p<.07).

DTI. Of the full baseline sample, n=9885 (83.23%) had T1 structural and DTI data passing all ABCD QC criteria and 8,897 of these had all relevant covariates and CBCL OCS scores (8893 with RSI model data).

OCS scores were not significantly related to mean FD during DTI scans (n=8585, b=0.01, t=0.92, p=.35, $\eta^2_{p<}$.001) or mean FA globally (n=8,585, b=0.01, t=0.26, p=.79, $\eta^2_{p<}$.001). The main text results indicated significant OCS association with FA in 9 tracts, with 2 passing FDR correction. We follow-up on the most significant effect, whereby greater OCS related to lower FA

in the parietal portion of the left superior cortico-striatal tract (SCS; n=8585, b=-0.03, t=-3.21, p<.001, FDR-p=.03).

The OCS effect on FA in the parietal SCS remained significant when controlling for the volume of the tract (which was also a highly significant predictor of FA, t=25.03, p<.001), for the use of psychotropic medications and the presence of other disorders (depressive, anxious, or ADHD diagnoses), for the count of current KSADS ASD symptoms, for as well as CBCL internalizing and externalizing scores (all OCS effects p<.05). In models covarying CBCL ADHD T-scores, FA showed a significant negative association with OCS (p=.03) and a trend-level negative association with ADHD (p=.09) negatively predicted FA. In this model with OCS and ADHD T-scores as concurrent predictors, ADHD was only significantly related to lower FA in the left uncinate (p=.02). Children with lifetime OCD exhibited lower FA than propensity matched healthy controls (b=-0.09, t(2209.98), t=-1.96, p=.04). Those with current OCD exhibited greater FA than those with current ADHD in the five group models (b=0.12, t(7263.41)=2.07, p=.04).

Examining the other metrics from the traditional DTI model, OCS was also related to lower tract volume (b=-0.04, t(8551.35)=-3.37, p<.001) and LD (b=-0.02, t(8555.05)=-2.19,p=.03), but not sig for MD (b=-0.01, t(8548.22)=-0.76, p=.45) or TD (b=0.02, t(8542.04)=1.76,p=.08) in the left parietal SCS.

The RSI model was used to capitalize on the multiple b-value acquisitions yielding six normalized metrics, each on a 0-1 scale: restricted normalized isotropic (N0), restricted normalized directional (ND), restricted normalized total (NT), hindered normalized isotropic (N0_s2), hindered normalized directional (ND_s2), and hindered normalized total (NT_s2). OCS was also related to white matter microstructure in the parietal portion of the left SCS as indexed by with five RSI parameters (N0_s2, ND, ND_s2, NT, NT_s2: all p<.05; these correlated with FA r>.8, Figure S5) – no OCS effect was observed in the SCS for restricted normalized isotropic (N0). OCS was not significant associated with RSI N0 in any other tract (all p>.05).

RSFC. Of the full baseline sample, n=7417 (62.45%) had usable RSFC data for these analyses: From the n=9589 children with good T1 structural data and available RSFC data, we excluded cases with <375 frames of data after head motion outlier regression (n=1205), cases acquired on Philips scanners (additional n=967). N=6715 had good RSFC and all covariates. We

further trimmed the top/bottom 0.25% most extreme values from each connection as recommend by ABCD.

Higher OCS severity (b=-.02, t=-2.22, p=.02, η^2_p=0.001), but not lifetime OCD (b=-.04, t=-1.15, p=.25, η^2_p<.001), related to having fewer frames of RSFC data (retained after QC and motion outlier removal); this was covaried in subsequent analyses. As noted in the main text, OCS scores associated with within-DAN, DAN-VAN, DAN-DMN, and CO-VAN RSFC. Effects of OCS for these connections remained significant (p<.05) when controlling for the use of psychotropic medications and the presence of other disorders (depressive, anxious, or ADHD diagnoses). All four OCS effects also remained significant (|t|>2.14, p<.02) when controlling for CBCL ADHD scores, which themselves were a significant predictor of CO-VAN and DAN-DMN connectivity in the same direction as CBCL OCS scores concurrently (t>2.35, p<.02). In models with OCS and ADHD as concurrent predictors, ADHD T-scores were significantly (p<.05) related negatively to within VAN and VAN-DMN RSFC and positively to CO-SN, CO-VAN, CO-DAN, DAN-VAN, and DAN-DMN RSFC, though none passed FDR correction. All four OCS effects also remained significant when controlling for the count of current KSADS ASD symptoms, which was only a significant concurrent predictor of DAN-DMN RSFC (t=2.71, p=.007). In models including OCD diagnosis, only a significant effect of OCS was noted, though effects of diagnosis were matched in sign. When including medication status as a covariate, the four OCS effects of interest all remained significant and medication did not significantly predict any of the four RSFC connections.

In the five group models, only within-DAN connectivity significant differed (weaker/more negative) between children with lifetime (and also current only) OCD and both healthy (b=-0.12, t(7780.25)=-2.44, p=.01) and clinical controls (b=-0.12, t(7785.27)=-2.28, p=.02). Children with current OCD also exhibited weaker/less negative DAN-DMN RSFC vs. propensity matched healthy (b=0.28, t(281.32)=2.31, p=.02) and clinical control groups (b=0.27, t(281.30)=2.16, p=.03) as well as weaker/less positive within-DAN RSFC vs. vs. propensity matched healthy controls (b=-0.35, t(281.03)=-2.71, p=.007).

Longitudinal Analyses. LME models were run with significant outcomes of interest from the above analyses as predictors of OCS scores at 1-year follow-up, controlling for baseline OCS and

standard covariates. None of the NIH Toolbox scores significantly predicted change in OCS (i.e. 1-year residualized for baseline; |t|<1.03, p>.30), though when controlling for baseline ADHD T-scores, only higher Cognition Total scores predicted worsening OCS (b=0.03, t(4077.96)=2.01, p=.04). Conversely, lower Cognition Total scores predicted worsening ADHD T-scores at 1-year (b=-.04, t(3884.18)=-3.05, p=.002) above and beyond baseline ADHD and OCS T-scores.

Subcortical volumes also did not significantly predict change in OCS by 1-year follow-up (|t|<1.03, p>.30; similarly, when controlling for baseline ADHD T-scores). Thickness in several cortical ROIs did relate to change in OCS though none passed FDR, greater thickness in the right cuneus and lingual gyrus as well as lower thickness in the left supramarginal gyrus, and right long insular gyrus, inferior circular sulcus of the insula and pericallosal sulcus related to worsening OCS (|t|>2.05, p<.034).

FA in the left parietal SCS did not predict 1-year follow-up OCS scores above and beyond baseline OCS (t=.88, p=.38). Of the other tracts, only FA in the right CGC negatively predicted OCS at 1-year follow-up (b=-.04, t=-2.60, p=.009).

Of the four RSFC connections showing significant associations with baseline OCS, DAN-DMN connectivity predicted 1-year follow-up OCS (n=3040, b=-0.04, t(2407.61)=-2.23, p=.03, η^2_p=0.03), above and beyond baseline OCS (b=0.61, t(2946,42)=38.89, p<.001, η^2_p=0.36). No other RSFC connectivity significantly predicted 1-year OCS, though when controlling for baseline ADHD T-scores DAN-CO RSFC emerged as an additional significant predictor (b=0.03, t=1.96, p=.05).

Table S1: Inter-Correlation Among Covariates

	Sex	Pub. Status	Race-White	Race-Black	Hispanic	Parent Marital Status	Parent Edu.	Parent Inc.	NIH Cog.	Height	T1 SNR	DTI FD	RSFC N Frame	CBCL OCS sum	CBCL OCS T-score
Age	t=2.3 *	.10 ***	t=1.1	t=-0.92	t=3.29 **	t=0.28	t=-2.33 *	.04 ***	.08 ***	.44 ***	.04 ***	-.05 ***	.14 ***	0.01	0.01
Sex (F)		t=30.5 ***	χ2=4.8 *	χ2=4.04 *	χ2=0.03	χ2=2.98	χ2=1	t=-0.57	t=1.34	t=1.86	t=-8.83 ***	t=-1.53	t=11.61 ***	t=5.61 ***	t=6.87 ***
Pubertal Status			t=-12.37 ***	t=14.25 ***	t=-1.56	t=-8.1 ***	t=-3.48 ***	-.09 ***	-.06 ***	.17 ***	-.05 ***	.02 *	0	0	0
Race-White				χ2=4701 ***	χ2=61.48 ***	χ2=1064 ***	χ2=939 ***	t=39.76 ***	t=32.81 ***	t=-6.84 ***	t=10.19 ***	t=-9.48 ***	t=10.08 ***	t=6.22 ***	t=4.97 ***
Race-Black					χ2=275 ***	χ2=1496 ***	χ2=405 ***	t=-37.5 ***	t=-35.83 ***	t=11.59 ***	t=-6.8 ***	t=7.9 ***	t=-8.56 ***	t=-2.48 *	t=-1.19
Hispanic						χ2=26.9 ***	χ2=682 ***	t=22.7 6***	t=13.99 ***	t=5.78 ***	t=2.15 *	t=-1.84	t3.69 ***	t=1.77	t=1.51
Parents Marital Status							χ2=485 ***	t=53.16 ***	t=26.9 ***	t=-4.85 ***	t=4.15 ***	t=-5.12 ***	t=8.05 ***	t=-2.83 **	t=-3.53 ***
Parental Education								t=53.26 ***	t=36.1 ***	t=0.98	t=6.37 ***	t=-5.4 ***	t=7.12 ***	t=3.43 ***	t=2.71 **
Parental Income									.40 ***	-0.01	.07 ***	-.08 ***	.13 ***	-.04 ***	-.05 ***
NIH Toolbox - Cognition										.05 ***	0	-.10 ***	.16 ***	0	-0.01
Height											-.03 **	-0.02	.05 ***	0	0
T1 SNR												-.18 ***	.11 ***	0	0
DTI FD													-.33 ***	0	0
RSFC N Frames														-.02 *	-.02 *
CBCL OCS sum															.98 ***

Note. The inter-relation among all covariates of interest are displayed here. Continuous variable associates are denoted by Pearson's correlation. Differences in continuous variables or dichotomous by dichotomous variables are tested by t-tested or chi-squared respectively (t or χ2 noted in each cell as applicable). Sample size adjusted by pairwise deletion.
*p<.05; ** p<.01; *** p<.001

Table S2: Demographic Characteristics of the ABCD Sample by OCS≥5

	Full Sample (*N*=11876)	**OCS<5 (*n*=11061)**	**OCS≥5 (*n*=807)**	**Group Difference**	***p***	**Effect Size**
Age	118.94 (7.46)	118.95 (7.46)	118.85 (7.52)	t=-0.37	.71	d=-0.01
Sex (F) ***	5681 (47.86%)	5337 (48.26%)	341 (42.26%)	$\chi2$=10.64	.001	OR=0.78
Pubertal Status	1.68 (0.72)	1.69 (0.72)	1.68 (0.74)	t=-0.17	.87	d=-0.01
Race-White *	8803 (74.13%)	8174 (73.9%)	625 (77.45%)	$\chi2$=4.76	.03	OR=1.21
Race-Black	2515 (21.18%)	2332 (21.08%)	183 (22.68%)	$\chi2$=1.05	.31	OR=1.10
Hispanic	9308 (79.44%)	8661 (79.36%)	645 (80.62%)	$\chi2$=0.65	.42	OR=1.08
Parents Marital Status (together/married) ***	8679 (73.69%)	8126 (74.09%)	551 (68.45%)	$\chi2$=12.02	<.001	OR=0.76
Parental Education (completed some college)	9812 (82.77%)	9136 (82.72%)	674 (83.62%)	$\chi2$=0.37	.54	OR=1.07
Parental Income ***	7.22 (2.42)	7.26 (2.4)	6.71 (2.6)	t=-5.62	<.001	d=-0.22
NIH Toolbox - Cognition Total **	100.37 (17.96)	100.51 (17.89)	98.54 (18.87)	t=-2.81	.005	d=-0.11
Height (inches)	55.26 (3.22)	55.25 (3.22)	55.28 (3.26)	t=0.20	.84	d=0.01
Parental Monitoring ***	4.38 (0.52)	4.39 (0.51)	4.31 (0.56)	t=-4.12	<.001	d=-0.16
Parent 1 Acceptance **	2.78 (0.3)	2.78 (0.3)	2.75 (0.34)	t=-2.52	.01	d=-0.10
Parent 2 Acceptance ***	2.69 (0.39)	2.69 (0.38)	2.64 (0.43)	t=-3.32	<.001	d=-0.13
Family Conflict - Child Report ***	2.05 (1.95)	2.02 (1.95)	2.38 (2.04)	t=4.77	<.001	d=0.18
Family Conflict - Parent Report ***	2.54 (1.96)	2.46 (1.92)	3.52 (2.15)	t=13.52	<.001	d=0.52
Usable Structural Data	10534 (88.7%)	9809 (88.68%)	722 (89.47%)	$\chi2$=0.39	.53	OR=1.08
CBCL OCS sum ***	1.34 (1.82)	0.98 (1.17)	6.37 (1.63)	t=92.41	<.001	d=3.80
CBCL OCS T-score ***	53.70 (6.12)	52.41 (3.78)	71.33 (4.7)	t=111.65	<.001	d=4.43

Note. Demographic characteristics of the sample are summarized here for the full ABCD baseline sample and split by CBCL OCS sores above an established threshold of ≥5.

Continuous and categorical variables are characterized respectively by mean and (standard deviation) or *N* and (percent) with group differences based on OCD diagnosis presence are compared by t-test (Cohen's d effect size) or chi-squared test (odds ratio [OR] effect size).

Pubertal status range=1-4. Income range=1-10. Conflict score range=0-9. Monitoring score range=1-5. Acceptance score range=1-3.

Group difference: * p<.05, ** p<.01, *** p<.001

Table S3: Clinical Characteristics of the ABCD Sample by OCS≥5

	Full Sample (*N*=11876)	**OCS<5 (*n*=11061)**	**OCS≥5 (*n*=807)**	**Group Difference**	**Effect Size**
CBCL T-score					
DSM Anxiety	53.49 (6.13)	52.49 (4.39)	67.2 (9.26)	t=44.70	d=2.03
DSM Depression	53.6 (5.73)	52.84 (4.69)	64.05 (8.02)	t=39.18	d=1.71
Thought Problems	53.8 (5.9)	52.93 (4.68)	65.67 (7.86)	t=45.40	d=1.97
DSM ADHD	53.23 (5.64)	52.65 (4.88)	61.15 (8.62)	t=27.67	d=1.21
Internalizing	48.45 (10.64)	47.11 (9.57)	66.75 (7.01)	t=74.63	d=2.34
Externalizing	45.73 (10.33)	44.78 (9.64)	58.72 (10.8)	t=35.62	d=1.36
Total	45.85 (11.34)	44.49 (10.3)	64.51 (8.05)	t=66.73	d=2.17
K-SADS lifetime diagnosis					
Any Depressive Disorder	1272 (10.9%)	1046 (9.62%)	225 (28.2%)	$\chi2$=262.24	OR=3.69
MDD	614 (5.27%)	477 (4.39%)	137 (17.32%)	$\chi2$=244.42	OR=4.56
Dysthymia	24 (0.21%)	13 (0.12%)	11 (1.39%)	$\chi2$=51.94	OR=11.77
Depression NOS	697 (5.97%)	598 (5.5%)	98 (12.28%)	$\chi2$=59.70	OR=2.40
Any Anxiety Disorder	1730 (14.83%)	1344 (12.36%)	385 (48.49%)	$\chi2$=761.92	OR=6.67
Separation Anxiety	1047 (8.95%)	825 (7.57%)	221 (27.83%)	$\chi2$=370.79	OR=4.71
Social Anxiety	619 (5.31%)	484 (4.46%)	135 (17.02%)	$\chi2$=229.71	OR=4.40
GAD	579 (4.96%)	347 (3.19%)	232 (29.29%)	$\chi2$=1059.86	OR=12.55
ADHD	2428 (20.76%)	1987 (18.24%)	441 (55.61%)	$\chi2$=625.09	OR=5.62
ODD/CD	1782 (15.24%)	1429 (13.12%)	353 (44.51%)	$\chi2$=561.53	OR=5.31
PTSD	231 (1.98%)	149 (1.37%)	82 (10.35%)	$\chi2$=302.73	OR=8.32
No diagnoses	7348 (61.99%)	7194 (65.17%)	149 (18.46%)	$\chi2$=694.22	OR=0.12
Unmedicated	10739 (90.43%)	10145 (91.72%)	587 (72.74%)	$\chi2$=310.84	OR=0.24

Note. Clinical characteristics of the sample are summarized here for the full ABCD baseline sample and split by CBCL OCS sores above an established threshold of ≥5.

Continuous and categorical variables are characterized respectively by mean and (standard deviation) or *N* and (percent) with group differences based on OCD diagnosis presence are compared by t-test (Cohen's d effect size) or chi-squared test (odds ratio [OR] effect size). All group differences were $p<.001$ significant, except for dysthymia ($p=.02$). No diagnoses indicated that none of the listed disorders were diagnosed past or present on the K-SADS.

Table S4: Clinical Predictors of Lifetime OCD Diagnosis

Fixed Effects	*b*	*z*	*p*	*OR*	*b*	*z*	*p*	*OR*
(Intercept)	-2.85	-16.51	<.001		-3.40	-18.59	<.001	
Age	-0.05	-1.45	.15	0.95	-0.07	-1.71	.09	0.94
Sex (male)	**0.20**	**5.31**	**<.001**	**1.50**	**0.24**	**3.01**	**.003**	**1.27**
White	**0.30**	**2.61**	**.009**	**1.35**	0.05	0.45	.65	1.06
Black	0.06	0.05	.62	1.06	-0.004	-0.03	.98	1.00
Hispanic	0.12	1.18	.24	1.13	0.06	0.62	.53	1.07
Parents Marital Status (together/married)	0.10	1.03	.30	1.10	**0.27**	**2.68**	**.01**	**1.31**
Parental Education (completed some college)	0.06	0.56	.58	1.06	-0.10	-0.85	.39	0.91
Parental Income	**-0.37**	**-7.78**	**<.001**	**0.69**	**-0.34**	**-6.88**	**<.001**	**0.71**
Pubertal Status	0.06	1.48	.14	1.06	0.01	0.25	.80	1.01
Cognition Total	-0.05	-1.32	.19	0.95	0.05	1.13	.26	1.05
Any Depressive Disorder					**0.42**	**4.24**	**<.001**	**1.52**
Any Anxiety Disorder					**0.38**	**12.11**	**<.001**	**2.86**
PTSD					**0.71**	**4.05**	**<.001**	**2.04**
ODD/CD					**0.43**	**4.57**	**<.001**	**1.54**
ADHD					**0.84**	**9.68**	**<.001**	**2.32**
Residual Variance (σ^2)	3.29				3.29			
Variance $_{\text{Family:Site}}$	0.44				0.40			
Variance $_{\text{Site}}$	0.01				0.00			
N $_{\text{Family}}$	8621				8594			
N $_{\text{Site}}$	22				22			
N total	10137				10102			
df	10124				10084			
Marginal R^2 / Conditional R^2	0.04 / 0.16				0.15 / 0.24			

Note. A logistic generalized mixed-effects model (*glmer*) was used to predict lifetime OCD diagnosis (present vs. absent). Standardized beta coefficients are presented for each predictor along with their corresponding z, p, and odds ratio (OR). Significant effects are in bold. Marginal R^2 indicates the variance accounted for by the fixed effects; conditional R^2 indicates the variance accounted for by the fixed and random effects. Minimal collinearity was detected–all variance inflation factors <2.08.

Table S5: K-SADS OCD Symptom Endorsement

K-SADS Symptom	**Total (*n*=11876)**	**OCD Absent (*n*=10584)**	**OCD Present (*n*=1099)**
Obsessions - Present	952 (8.1)	411 (3.9)	541 (49.2)
Obsessions - Intrusive	393 (5.6)	78 (1.3)	315 (28.7)
Obsessions - Time Consuming	160 (2.3)	28 (0.5)	132 (12.0)
Obsessions - Cause Distress	626 (8.9)	168 (2.8)	458 (41.7)
Obsessions - Cause Impairment	427 (6.1)	102 (1.7)	325 (29.6)
Obsessions - Try to Suppress	508 (7.2)	140 (2.4)	368 (33.5)
Compulsions - Present	1039 (8.9)	284 (2.7)	754 (68.6)
Compulsions - Done to reduce Anxiety	1038 (14.7)	282 (4.8)	754 (68.6)
Compulsions - Time Consuming	294 (4.2)	0 (0.0)	294 (26.8)
Compulsions - Cause Distress	537 (7.6)	0 (0.0)	537 (48.9)
Compulsions - Cause Impairment	401 (5.7)	0 (0.0)	401 (36.5)

Note. Endorsement rates for K-SADS OCD symptoms are summarized here. The number (percent) of participants meeting each K-SADS criteria (present; last two weeks) are presented for the full sample and split by the presence/absence of a lifetime OCD diagnoses. All differences between those with and without lifetime OCD are $p<.001$ significant in this table.

Table S6: Predictors of OCS T-scores

Fixed Effects	*b*	*z*	*p*	η^2_p
(Intercept)	-0.30	-4.34	**.003**	-
Age	0.02	1.66	.10	0.00
Sex (male)	0.13	6.50	**<.001**	**0.006**
White	0.16	5.13	**<.001**	**0.004**
Black	-0.00	-0.02	.98	0.00
Hispanic	0.02	0.54	.59	0.00
Parents Marital Status (together/married)	-0.03	-0.93	.35	0.00
Parental Education (completed some college)	0.13	3.83	**<.001**	**.002**
Parental Income	-0.10	-6.73	**<.001**	**.006**
Pubertal Status	.02	1.57	.12	0.00
Random Effects				
Residual Variance (σ^2)	0.65			
Variance $_{\text{Family:Site}}$	0.33			
Variance $_{\text{Site}}$	0.01			
ICC	0.34			
N $_{\text{Family}}$	8978			
N $_{\text{Site}}$	22			
N total	10665			
df	10652			
Marginal R^2 / Conditional R^2	.01 / .35			

Note. A linear mixed effects model was used to predict CBCL OCS T-scores. Standardized beta coefficients are presented for each predictor along with their corresponding t, p, and partial eta-squared effect sizes (η^2_p). Significant effects are in bold. Marginal R^2 indicates the variance accounted for by the fixed effects; conditional R^2 indicates the variance accounted for by the fixed and random effects. Minimal collinearity was detected–all variance inflation factors <1.81.

Table S7: Linear Mixed-Effects Model Analyses Predicting NIH Toolbox T-Scores

	OCS, Original model		**OCS, covary CBCL ADHD**		**OCS, covary KSADS ADHD**		**OCS, exclude KSADS ADHD**	
	b	**t**	**b**	**t**	**b**	**t**	**b**	**t**
Cognition Total	*-0.001*	-0.143	***0.062***	**6.284*****#	***0.034***	**3.744*****#	***0.030***	**3.076****#
Flanker	**-0.021**	**-2.117***	0.008	0.716	-0.007	-0.627	-0.001	-0.094
Card Sort	**-0.025**	**-2.511***	0.009	0.800	-0.006	-0.593	-0.006	-0.566
Processing	-0.015	-1.473	0.018	1.599	0.006	0.615	0.003	0.294
Working Memory	**-0.022**	**-2.149***	**0.026**	**2.29*#**	0.007	0.683	0.011	0.929
Sequence	**-0.019**	**-2.016***	0.019	1.729	0.004	0.439	0.002	0.154
Picture Vocabulary	**0.021**	**2.109***	**0.046**	**4.107*****#	**0.039**	**3.737*****#	0.022	1.940
Oral Reading	0.013	1.326	**0.068**	**6.068*****#	**0.044**	**4.279*****#	**0.041**	**3.613*****#

Note. Separate linear mixed-effects models were used to examine associations between OCS (n=10298) and NIH Toolbox T-scores, controlling for all covariates, including random effects for family nested within ABCD Site. Additional models covary for CBCL ADHD T-scores (n=10297), KSADS ADHD diagnosis (n=10145), or excluding lifetime KSADS ADHD diagnosis (n=8032). Standardized beta coefficients and T-statistics are presented for each OCS effect.
*p<.05; ** p<.01; *** p<.001; # FDR-corrected p<.05

Table S8: Linear Mixed-Effects Model Analyses Predicting NIH Toolbox T-Scores

	NIH Cognition Total				**NIH Cognition Total**				**NIH Cognition Total**			
Predictors	***b***	***t***	***p***	η^2_p	***b***	***t***	***p***	η^2_p	***b***	***t***	***p***	η^2_p
(Intercept)	-0.49	-9.39	**<0.001**	-	-0.50	-9.56	**<.001**	-	-0.64	-10.5	**<.001**	-
Age	0.09	9.89	**<.001**	0.02	0.08	9.41	**<.001**	0.01	0.08	9.58	**<.001**	0.01
Sex (M)	-0.02	-2.53	**.01**	<.001	-0.02	-1.70	.09	<.001	-0.02	-1.29	.196	<.001
White	0.16	5.66	**<.001**	0.01	0.17	6.02	**<.001**	0.01	0.18	6.13	**<.001**	0.01
Black	-0.34	-10.46	**<.001**	0.02	-0.32	-9.9	**<.001**	0.02	-0.32	-9.94	**<.001**	0.02
Hispanic	0.19	6.98	**<.001**	0.01	0.19	7.13	**<.001**	0.01	0.20	7.25	**<.001**	0.01
Parents Marital Status (together/married)	0.06	2.40	**.02**	<.001	0.05	2.10	.036	<.001	0.05	1.91	.056	<.001
Parental Education (completed some college)	0.30	10.13	**<.001**	0.02	0.31	10.33	**<.001**	0.02	0.31	10.32	**<.001**	0.02
Parental Income	0.23	17.93	**<.001**	0.05	0.22	17.31	**<.001**	0.05	0.22	17.38	**<.001**	0.05
Pubertal Status	-0.02	-1.67	.09	<.001	-0.01	-1.43	.153	<.001	-0.01	-1.49	.137	<.001
CBCL OCS	-0.001	-0.14	.89	<.001	0.06	6.28	**<.001**	0.01	0.06	6.41	**<.001**	0.01
CBCL ADHD	-	-	-	-	-0.14	-13.9	**<.001**	0.03	-0.12	-11.5	**<.001**	0.02
Medication Status	-	-	-	-	-	-	-	-	-0.14	-4.43	**<.001**	.003
Random Effects												
Residual Variance (σ^2)	0.43				0.42				0.42			
Variance $_{Family:Site}$	0.35				0.35				0.35			
Variance $_{Site}$	0.02				0.02				0.02			
ICC	0.46				0.47				0.47			
N $_{Family}$	8739				8739				8739			
N $_{Site}$	22				22				22			
N total	10298				10297				10297			
df	10284				10282				10282			
Marginal R^2 / Conditional R^2	.21 / .57				.22 / .59				.22 / .59			

Note. A linear mixed effects model was used to predict NIH Total Cognition T-scores. Standardized beta coefficients are presented for each predictor along with their corresponding t, p, and partial eta-squared effect sizes (η^2_p). Significant effects are in bold. Marginal R^2 indicates the variance accounted for by the fixed effects; conditional R^2 indicates the variance accounted for by the fixed and random effects. Minimal collinearity was detected–all variance inflation factors <1.81.

Table S9. Linear Mixed-Effects Model Analyses Predicting Subcortical Brain Volumes

	OCS			OCD		
	b	**t**	**p**	**b**	**t**	**p**
ICV	-0.01	-1.59	.11	-0.03	-1.03	.30
L thalamus	0.00	-0.06	.95	0.00	-0.22	.83
L caudate	-0.01	-1.32	.19	0.01	0.25	.80
L putamen	0.01	0.96	.34	-0.04	-1.29	.20
L pallidum	0.00	-0.53	.59	0.01	0.17	.86
L hippocampus	-0.01	-1.25	.21	0.00	-0.03	.97
L amygdala	0.00	-0.16	.88	0.00	0.10	.92
L accumbens	-0.01	-0.59	.55	-0.02	-0.57	.57
R thalamus	-0.01	-0.77	.44	0.01	0.32	.75
R caudate	-0.01	-0.77	.44	0.00	0.09	.93
R putamen	0.00	0.39	.70	-0.03	-0.99	.32
R pallidum	0.00	0.25	.81	-0.06	-1.96	.05
R hippocampus	0.00	-0.44	.66	-0.01	-0.42	.68
R amygdala	-0.01	-0.88	.38	-0.02	-0.86	.39
R accumbens	-0.02	-1.94	.05	-0.02	-0.70	.49

Note. Separate linear mixed-effects models were used to examine associations between OCS (n=9142) or lifetime OCD (n=9000) and brain volumes, controlling for all covariates (ICV covaried for subcortical volumes only), including random effects for family nested within scanner serial number. Standardized beta coefficients, T-statistics, and p-values are presented for each effect. None passed FDR correction.
L=left; R=right.
*p<.05; ** p<.01; *** p<.001

Table S10: Linear Mixed-Effects Model Analyses Predicting Cortical Thickness

	OCS			OCD		
Left Hemisphere	**b**	**t**	**p**	**b**	**t**	**p**
fronto-marginal gyrus and sulcus	0.004	0.367	.714	0.004	0.110	.912
inferior occipital gyrus and sulcus	-0.003	-0.310	.757	0.014	0.396	.692
paracentral lobule and sulcus	-0.015	-1.654	.098	-0.054	-1.686	.092
subcentral gyrus and sulci	-0.005	-0.484	.628	-0.020	-0.552	.581
transverse frontopolar gyri and sulci	0.008	0.829	.407	0.018	0.530	.596
anterior part of the cingulate gyrus and sulcus	0.009	0.943	.346	0.021	0.603	.547
middle-anterior part of the cingulate gyrus and sulcus	0.001	0.147	.884	0.053	1.592	.111
middle-posterior part of the cingulate gyrus and sulcus	0.008	0.811	.417	0.045	1.333	.182
posterior-dorsal part of the cingulate gyrus	0.011	1.137	.255	0.047	1.339	.181
posterior-ventral part of the cingulate gyrus	0.006	0.531	.596	0.010	0.265	.791
cuneus	-0.004	-0.388	.698	0.002	0.051	.959
opercular part of the inferior frontal gyrus	-0.010	-1.011	.312	0.008	0.221	.825
orbital part of the inferior frontal gyrus	0.011	1.080	.280	0.019	0.517	.605
triangular part of the inferior frontal gyrus	-0.003	-0.247	.805	-0.004	-0.112	.911
middle frontal gyrus	0.009	0.977	.329	-0.017	-0.545	.586
superior frontal gyrus	0.005	0.578	.564	0.008	0.242	.809
long insular gyrus and central sulcus of the insula	0.001	0.103	.918	0.019	0.516	.606
short insular gyri	0.001	0.113	.910	0.022	0.614	.539
middle occipital gyrus	-0.016	-1.910	.056	-0.048	-1.656	.098
superior occipital gyrus	-0.006	-0.708	.479	-0.025	-0.783	.434
lateral occipito-temporal gyrus	-0.007	-0.715	.475	-0.024	-0.674	.500
lingual gyrus	0.000	-0.005	.996	0.008	0.250	.803
parahippocampal gyrus	-0.015	-1.501	.133	-0.033	-0.919	.358
orbital gyri	**-0.024**	**-2.342**	**.019**	-0.016	-0.433	.665
angular gyrus	-0.010	-1.181	.238	-0.014	-0.486	.627
supramarginal gyrus	-0.003	-0.375	.708	0.011	0.406	.685
superior parietal lobule	-0.003	-0.292	.770	-0.037	-1.162	.245
postcentral gyrus	-0.010	-1.130	.259	-0.052	-1.683	.092
precentral gyrus	-0.006	-0.675	.499	-0.031	-1.056	.291
precuneus	0.001	0.105	.916	0.028	0.807	.420
gyrus rectus	0.002	0.202	.840	0.021	0.610	.542
subcallosal gyrus	-0.015	-1.517	.129	-0.033	-0.974	.330
anterior transverse temporal gyrus	-0.005	-0.479	.632	-0.046	-1.249	.212
lateral aspect of the superior temporal gyrus	-0.004	-0.450	.652	0.003	0.089	.929
planum polare of the superior temporal gyrus	-0.003	-0.329	.742	0.013	0.348	.728
planum temporale	-0.007	-0.662	.508	-0.019	-0.547	.584
inferior temporal gyrus	-0.011	-1.148	.251	0.025	0.737	.461
middle temporal gyrus	-0.009	-1.056	.291	-0.009	-0.279	.781
horizontal ramus of the ant. segment of the lateral sulcus	0.010	0.984	.325	0.050	1.351	.177
vertical ramus of the ant. segment of the lateral sulcus	-0.014	-1.300	.193	-0.045	-1.205	.228
posterior ramus of the lateral sulcus	0.001	0.098	.922	-0.035	-0.985	.325
occipital pole	**-0.017**	**-2.182**	**.029**	**-0.060**	**-2.135**	**.033**
temporal pole	-0.014	-1.378	.168	-0.066	-1.812	.070
calcarine sulcus	-0.007	-0.688	.492	-0.037	-1.082	.279
central sulcus	**-0.025**	**-2.471**	**.013**	-0.031	-0.880	.379
marginal branch of the cingulate sulcus	-0.006	-0.570	.569	-0.017	-0.503	.615
anterior segment of the circular sulcus of the insula	-0.010	-0.919	.358	-0.029	-0.782	.434
inferior segment of the circular sulcus of the insula	0.006	0.589	.556	-0.056	-1.579	.114
superior segment of the circular sulcus of the insula	0.003	0.285	.776	-0.039	-1.099	.272
anterior transverse collateral sulcus	0.000	-0.022	.982	-0.023	-0.624	.533
posterior transverse collateral sulcus	-0.012	-1.119	.263	-0.034	-0.944	.345

inferior frontal sulcus	-0.005	-0.543	.587	-0.019	-0.528	.598
middle frontal sulcus	-0.002	-0.203	.839	0.011	0.309	.757
superior frontal sulcus	-0.004	-0.428	.669	-0.068	-1.921	.055
sulcus intermedius primus	-0.001	-0.068	.946	-0.013	-0.346	.729
intraparietal sulcus and transverse parietal sulci	-0.010	-1.006	.314	-0.006	-0.162	.872
middle occipital sulcus and lunatus sulcus	-0.011	-1.173	.241	0.002	0.052	.958
superior occipital sulcus and transverse occipital sulcus	-0.015	-1.565	.118	-0.041	-1.222	.222
anterior occipital sulcus and preoccipital notch	-0.010	-0.979	.327	-0.035	-0.977	.329
lateral occipito-temporal sulcus	-0.009	-0.855	.393	-0.016	-0.456	.648
medial occipito-temporal sulcus and lingual sulcus	-0.011	-1.060	.289	-0.029	-0.830	.407
lateral orbital sulcus	-0.007	-0.628	.530	-0.062	-1.715	.086
medial orbital sulcus	-0.007	-0.697	.486	0.005	0.141	.888
orbital sulci	-0.007	-0.709	.479	-0.007	-0.195	.846
parieto-occipital sulcus	-0.011	-1.112	.266	-0.036	-1.042	.297
pericallosal sulcus	0.016	1.559	.119	0.036	0.991	.322
postcentral sulcus	-0.016	-1.623	.105	-0.024	-0.686	.493
inferior part of the precentral sulcus	-0.005	-0.528	.597	0.047	1.296	.195
superior part of the precentral sulcus	-0.007	-0.662	.508	-0.050	-1.389	.165
suborbital sulcus	0.009	0.838	.402	0.046	1.256	.209
subparietal sulcus	0.001	0.076	.939	0.004	0.105	.917
inferior temporal sulcus	-0.008	-0.743	.458	0.004	0.123	.902
superior temporal sulcus	-0.003	-0.329	.742	-0.006	-0.162	.872
transverse temporal sulcus	0.001	0.066	.947	-0.004	-0.111	.912

Note. Separate linear mixed-effects models were used to examine associations between OCS or lifetime OCD and cortical thickness (Destrieux atlas), controlling for all covariates, including random effects for family nested within scanner serial number. Standardized beta coefficients, T-statistics, and p-values are presented for each effect. None passed FDR correction. Significant effects are in bold. *p<.05; ** p<.01; *** p<.001

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Table S10. Linear Mixed-Effects Model Analyses Predicting Cortical Thickness

	OCS			OCD		
Right Hemisphere	**b**	**t**	**p**	**b**	**t**	**p**
fronto-marginal gyrus and sulcus	-0.001	-0.071	.943	-0.038	-1.066	.286
inferior occipital gyrus and sulcus	-0.010	-0.987	.324	-0.056	-1.584	.113
paracentral lobule and sulcus	-0.007	-0.709	.479	-0.031	-0.926	.354
subcentral gyrus and sulci	0.010	0.979	.328	0.062	1.744	.081
transverse frontopolar gyri and sulci	0.006	0.682	.496	0.056	1.680	.093
anterior part of the cingulate gyrus and sulcus	0.010	0.976	.329	0.042	1.228	.219
middle-anterior part of the cingulate gyrus and sulcus	**-0.022**	**-2.253**	**.024***	0.003	0.099	.921
middle-posterior part of the cingulate gyrus and sulcus	0.004	0.393	.694	0.002	0.056	.956
posterior-dorsal part of the cingulate gyrus	0.009	0.856	.392	0.007	0.195	.845
posterior-ventral part of the cingulate gyrus	0.010	0.975	.329	-0.028	-0.757	.449
cuneus	-0.002	-0.170	.865	0.026	0.762	.446
opercular part of the inferior frontal gyrus	**0.026**	**2.561**	**.010***	0.031	0.875	.381
orbital part of the inferior frontal gyrus	0.012	1.142	.254	-0.042	-1.153	.249
triangular part of the inferior frontal gyrus	0.015	1.670	.095	-0.018	-0.568	.570
middle frontal gyrus	0.004	0.478	.632	-0.047	-1.502	.133
superior frontal gyrus	-0.003	-0.330	.741	-0.013	-0.368	.713
long insular gyrus and central sulcus of the insula	0.004	0.409	.682	-0.010	-0.290	.772
short insular gyri	-0.012	-1.119	.263	-0.001	-0.035	.972
middle occipital gyrus	-0.013	-1.468	.142	-0.006	-0.207	.836
superior occipital gyrus	-0.008	-0.895	.371	0.018	0.574	.566
lateral occipito-temporal gyrus	-0.002	-0.208	.835	-0.021	-0.585	.559
lingual gyrus	-0.002	-0.209	.835	0.000	-0.005	.996
parahippocampal gyrus	0.000	0.023	.982	-0.007	-0.206	.837
orbital gyri	**-0.027**	**-2.631**	**.009****	-0.026	-0.717	.473
angular gyrus	-0.001	-0.113	.910	-0.027	-0.898	.369
supramarginal gyrus	0.011	1.468	.142	-0.044	-1.700	.089
superior parietal lobule	-0.003	-0.324	.746	-0.046	-1.385	.166
postcentral gyrus	-0.009	-0.957	.339	**-0.086**	**-2.714**	**.007****
precentral gyrus	-0.009	-0.980	.327	-0.037	-1.173	.241
precuneus	-0.013	-1.283	.199	0.023	0.623	.533
gyrus rectus	0.004	0.365	.715	-0.020	-0.552	.581
subcallosal gyrus	0.014	1.516	.130	0.027	0.826	.409
anterior transverse temporal gyrus	-0.012	-1.206	.228	-0.050	-1.384	.167
lateral aspect of the superior temporal gyrus	0.004	0.492	.623	-0.016	-0.531	.596
planum polare of the superior temporal gyrus	0.002	0.176	.860	**0.075**	**2.055**	**.040***
planum temporale	-0.010	-0.990	.322	-0.028	-0.809	.419
inferior temporal gyrus	-0.012	-1.257	.209	0.027	0.801	.423
middle temporal gyrus	0.002	0.192	.848	-0.003	-0.109	.913
horizontal ramus of the ant. segment of the lateral sulcus	-0.008	-0.742	.458	-0.009	-0.242	.809
vertical ramus of the ant. segment of the lateral sulcus	-0.005	-0.513	.608	-0.005	-0.134	.893
posterior ramus of the lateral sulcus	-0.003	-0.346	.730	-0.038	-1.091	.275
occipital pole	-0.007	-0.813	.416	-0.025	-0.839	.401
temporal pole	-0.007	-0.652	.514	-0.042	-1.173	.241
calcarine sulcus	-0.003	-0.302	.762	-0.008	-0.225	.822
central sulcus	-0.016	-1.566	.117	0.006	0.156	.876
marginal branch of the cingulate sulcus	-0.019	-1.798	.072	-0.068	-1.885	.060
anterior segment of the circular sulcus of the insula	-0.013	-1.242	.214	-0.022	-0.618	.536
inferior segment of the circular sulcus of the insula	0.006	0.584	.559	-0.040	-1.107	.268
superior segment of the circular sulcus of the insula	-0.010	-0.981	.326	**-0.069**	**-1.994**	**.046***
anterior transverse collateral sulcus	-0.006	-0.594	.553	-0.001	-0.039	.969
posterior transverse collateral sulcus	-0.008	-0.815	.415	-0.057	-1.592	.111

inferior frontal sulcus	-0.012	-1.253	.210	-0.022	-0.630	.529
middle frontal sulcus	-0.006	-0.595	.552	-0.020	-0.583	.560
superior frontal sulcus	-0.012	-1.187	.235	-0.031	-0.882	.378
sulcus intermedius primus	0.005	0.499	.618	-0.009	-0.242	.809
intraparietal sulcus and transverse parietal sulci	-0.010	-0.953	.340	0.016	0.443	.658
middle occipital sulcus and lunatus sulcus	-0.001	-0.075	.940	-0.016	-0.456	.648
superior and transverse occipital sulci	**-0.032**	**-3.185**	**.001****	-0.036	-1.025	.305
anterior occipital sulcus and preoccipital notch	-0.019	-1.899	.058	-0.036	-1.016	.310
lateral occipito-temporal sulcus	**-0.020**	**-2.045**	**.041***	**-0.069**	**-2.023**	**.043***
medial occipito-temporal sulcus and lingual sulcus	-0.012	-1.234	.217	-0.053	-1.559	.119
lateral orbital sulcus	0.001	0.132	.895	-0.052	-1.426	.154
medial orbital sulcus	-0.009	-0.924	.355	-0.063	-1.774	.076
orbital sulci	-0.014	-1.442	.149	0.005	0.132	.895
parieto-occipital sulcus	0.000	0.014	.988	0.043	1.221	.222
pericallosal sulcus	0.007	0.655	.513	0.001	0.016	.987
postcentral sulcus	-0.012	-1.148	.251	-0.065	-1.832	.067
inferior part of the precentral sulcus	-0.009	-0.889	.374	-0.013	-0.350	.727
superior part of the precentral sulcus	-0.010	-0.965	.335	-0.022	-0.597	.550
suborbital sulcus	0.004	0.383	.702	0.006	0.168	.867
subparietal sulcus	-0.013	-1.274	.203	-0.001	-0.038	.969
inferior temporal sulcus	-0.007	-0.667	.505	-0.011	-0.315	.753
superior temporal sulcus	-0.007	-0.686	.493	-0.004	-0.104	.917
transverse temporal sulcus	0.000	-0.018	.986	**-0.097**	**-2.654**	**.008****

Note. Separate linear mixed-effects models were used to examine associations between OCS or lifetime OCD and cortical thickness (Destrieux atlas), controlling for all covariates, including random effects for family nested within scanner serial number. Standardized beta coefficients, T-statistics, and p-values are presented for each effect. None passed FDR correction. Significant effects are in bold. *p<.05; ** p<.01; *** p<.001

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Table S11: Linear Mixed-Effects Model Analyses Predicting Diffusion Tensor Imaging

	OCS			OCD		
Tract - FA	**b**	**t**	**p**	**b**	**t**	**p**
corpus callosum	0.000	-0.043	.966	-0.014	-0.513	.608
forceps major	0.010	1.101	.271	0.029	0.873	.383
forceps minor	-0.006	-0.828	.408	-0.047	-1.756	.079
L anterior thalamic radiation	**0.017**	**1.971**	**.049 ***	0.020	0.678	.498
L cingulate cingulum	0.011	1.225	.221	-0.013	-0.396	.692
L corticospinal/pyramidal tract	-0.015	-1.661	.097	-0.010	-0.322	.748
L fornix	**0.022**	**2.213**	**.027 ***	-0.039	-1.126	.260
L inferior frontal superior frontal cortex	-0.005	-0.528	.597	0.039	1.206	.228
L inferior longitudinal fasciculus	-0.006	-0.620	.535	0.014	0.424	.672
L inferior-fronto-occipital fasciculus	-0.010	-1.135	.257	-0.032	-1.031	.303
L parahippocampal cingulum	-0.010	-1.122	.262	-0.011	-0.337	.736
L parietal superior longitudinal fasciculus	-0.004	-0.460	.645	-0.045	-1.416	.157
L striatal inferior frontal cortex	-0.005	-0.518	.605	-0.037	-1.153	.249
L superior corticostriate tract	***-0.028***	***-3.070***	***.002 ** #***	*-0.042*	*-1.292*	*.197*
L superior corticostriate tract - frontal cortex	**-0.020**	**-2.123**	**.034 ***	-0.022	-0.677	.498
L superior corticostriate tract - parietal cortex	***-0.031***	***-3.310***	***.001 *** #***	*-0.050*	*-1.515*	*.130*
L superior longitudinal fasciculus	-0.002	-0.262	.793	-0.032	-1.023	.306
L temporal superior longitudinal fasciculus	-0.003	-0.286	.775	-0.025	-0.773	.440
L uncinate	-0.011	-1.428	.153	-0.039	-1.408	.159
R anterior thalamic radiation	0.007	0.863	.388	0.006	0.206	.837
R cingulate cingulum	-0.004	-0.429	.668	-0.050	-1.439	.150
R corticospinal/pyramidal tract	-0.008	-0.931	.352	-0.014	-0.441	.660
R fornix	0.009	0.901	.368	0.013	0.405	.686
R inferior frontal superior frontal cortex	0.005	0.528	.597	0.032	1.034	.301
R inferior longitudinal fasciculus	-0.004	-0.443	.658	0.024	0.730	.465
R inferior-fronto-occipital fasciculus	-0.008	-0.902	.367	-0.023	-0.757	.449
R parahippocampal cingulum	**-0.021**	**-2.297**	**.022 ***	-0.031	-0.953	.341
R parietal superior longitudinal fasciculus	0.000	-0.030	.976	-0.031	-0.939	.348
R striatal inferior frontal cortex	0.000	0.029	.977	-0.019	-0.559	.576
R superior corticostriate tract	**-0.023**	**-2.629**	**.009 ****	-0.043	-1.414	.157
R superior corticostriate tract - frontal cortex	**-0.018**	**-2.102**	**.036 ***	-0.032	-1.037	.300
R superior corticostriate tract - parietal cortex	**-0.022**	**-2.497**	**.013 ***	-0.039	-1.230	.219
R superior longitudinal fasciculus	-0.001	-0.145	.885	-0.027	-0.841	.400
R temporal superior longitudinal fasciculus	-0.005	-0.510	.610	-0.016	-0.483	.629
R uncinate	-0.013	-1.578	.115	-0.030	-1.066	.286

Note. Separate linear mixed-effects models were used to examine associations between OCS or lifetime OCD and fractional anisotropy, controlling for all covariates, including random effects for family nested within scanner serial number. Standardized beta coefficients, T-statistics, and p-values are presented for each effect. Significant effects are in bold. *p<.05; ** p<.01; *** p<.001, # FDR corrected p<.05

Table S12: Linear Mixed Effects Model Results Predicting Left Parietal SCS FA

Predictors	***b***	***t***	***p***	η^2_p
(Intercept)	-0.02	-0.21	.834	-
Age	**0.08**	**8.76**	**<.001**	**0.130**
Sex (M)	**-0.07**	**-3.79**	**<.001**	**0.002**
White	0.02	0.55	.583	<.001
Black	0.06	1.62	.105	<.001
Hispanic	**0.09**	**3.15**	**.002**	**0.002**
Parents Marital Status (together/married)	-0.03	-1.17	.240	<.001
Parental Education (completed some college)	0.00	-0.06	.950	<.001
Parental Income	**0.03**	**2.05**	**.041**	**0.001**
Pubertal Status	0.02	1.68	.093	<.001
NIH Cognition	**0.03**	**2.54**	**.011**	**0.001**
Mean FD	**-0.06**	**-6.20**	**<.001**	**0.007**
CBCL OCS	**-0.03**	**-3.31**	**.001**	**0.002**
Random Effects				
Residual Variance (σ^2)	0.48			
Variance $_{Family:MRI}$	0.26			
Variance $_{MRI}$	0.33			
ICC	0.55			
N $_{Family}$	7430			
N $_{Site}$	29			
N total	8585			
df	8569			
Marginal R^2 / Conditional R^2	.018 / .561			

Note. A linear mixed effects model was used to predict FA in the parietal portion of the left superior cortico-striate tract. Standardized beta coefficients are presented for each predictor along with their corresponding t, p, and partial eta-squared effect sizes (η^2_p). Significant effects are in bold. Marginal R^2 indicates the variance accounted for by the fixed effects; conditional R^2 indicates the variance accounted for by the fixed and random effects. Minimal collinearity was detected–all variance inflation factors <1.84.

Table S13: Linear Mixed-Effects Model Analyses Predicting Resting State Connectivity

	OCS			OCD		
RSFC	**b**	**t**	**p**	**b**	**t**	**p**
Within Cingulo-Opercular	0.009	0.777	.437	0.029	0.723	.470
Between Cingulo-Opercular & Cingulo-Parietal	0.002	0.182	.855	0.051	1.215	.224
Between Cingulo-Opercular & Dorsal Attention	-0.006	-0.476	.634	0.008	0.195	.845
Between Cingulo-Opercular & Fronto-Parietal	0.002	0.152	.879	0.029	0.713	.476
Between Cingulo-Opercular & Salience	0.012	1.043	.297	0.022	0.520	.603
Between Cingulo-Opercular & Ventral Attention	***0.037***	***3.176***	***.001*** #	**0.101**	**2.444**	**.015***
Between Cingulo-Opercular & Default Mode	0.013	1.205	.228	0.040	1.022	.307
Within Cingulo-Parietal	0.003	0.228	.819	0.035	0.864	.388
Between Cingulo-Parietal & Dorsal Attention	0.022	1.829	.067	0.023	0.537	.591
Between Cingulo-Parietal & Fronto-Parietal	0.008	0.682	.495	0.072	1.704	.088
Between Cingulo-Parietal & Salience	-0.012	-0.990	.322	0.068	1.642	.101
Between Cingulo-Parietal & Ventral Attention	-0.014	-1.219	.223	0.033	0.796	.426
Between Cingulo-Parietal & Default Mode	-0.011	-0.930	.353	-0.001	-0.017	.986
Within Dorsal Attention	***-0.043***	***-3.714***	***<.001**** #	-0.069	-1.698	.089
Between Dorsal Attention & Fronto-Parietal	0.009	0.765	.444	0.007	0.175	.861
Between Dorsal Attention & Salience	*0.012*	*1.012*	*.311*	*0.051*	*1.222*	*.222*
Between Dorsal Attention & Ventral Attention	***0.034***	***2.952***	***0.003**** #	0.067	1.635	.102
Between Dorsal Attention & Default Mode	***0.043***	***3.944***	***<.001**** #	0.060	1.548	*.122*
Within Fronto-Parietal	0.011	0.964	.335	-0.008	-0.196	.844
Between Fronto-Parietal & Salience	0.015	1.250	.211	-0.018	-0.436	.663
Between Fronto-Parietal & Ventral Attention	0.018	1.535	.125	-0.008	-0.196	.845
Between Fronto-Parietal & Default Mode	0.013	1.130	.258	0.007	0.162	.871
Within Salience	-0.002	-0.213	.832	-0.006	-0.151	.880
Between Salience & Ventral Attention	0.015	1.344	.179	0.011	0.258	.796
Between Salience & Default Mode	-0.004	-0.320	.749	-0.008	-0.189	.850
Within Ventral Attention	0.003	0.255	.799	0.053	1.288	.198
Between Ventral Attention & Default Mode	**-0.026**	**-2.277**	**.023***	-0.072	-1.765	.078
Within Default Mode	**-0.022**	**-2.012**	**.044***	-0.042	-1.050	.294

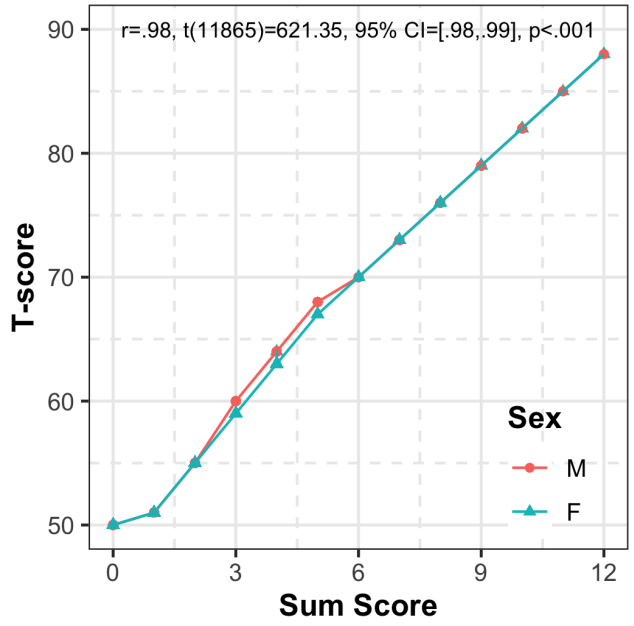
Note. Separate linear mixed-effects models were used to examine associations between OCS or lifetime OCD and network-level resting state connectivity, controlling for all covariates, including random effects for family nested within scanner serial number. Standardized beta coefficients, T-statistics, and p-values are presented for each effect. Significant effects are in bold. *p<.05; ** p<.01; *** p<.001, # FDR corrected p<.05

Table S14: Linear Mixed Effects Model Results Predicting DAN RSFC

	Within DAN				***DAN-DMN***			
Predictors	***b***	***t***	***p***	η^2_p	***b***	***t***	***p***	η^2_p
(Intercept)	-0.11	-1.59	.111	-	0.16	2.21	**.027**	-
Age	**0.02**	**2.03**	**.042**	**0.001**	**-0.04**	**-3.53**	**<.001**	**0.002**
Sex (M)	**-0.08**	**-3.38**	**.001**	**0.002**	**0.16**	**7.23**	**<.001**	**0.008**
White	0.02	0.59	.554	<.001	-0.08	-2.20	.028	0.001
Black	-0.03	-0.71	.479	<.001	**0.08**	**1.98**	**.048**	**0.001**
Hispanic	-0.06	-1.62	.105	<.001	0.02	0.51	.609	<.001
Parents Marital Status (together/married)	0.04	1.17	.243	<.001	-0.01	-0.49	.626	<.001
Parental Education (completed some college)	0.00	-0.05	.957	<.001	**0.08**	**2.17**	**.030**	**0.001**
Parental Income	0.03	1.92	.055	0.001	**-0.04**	**-2.53**	**.011**	**0.001**
Pubertal Status	0.00	0.03	.973	<.001	-0.01	-1.19	.235	<.001
NIH Cognition	0.02	1.58	.113	<.001	**-0.03**	**-2.36**	**.018**	**0.001**
N Frames	**0.19**	**14.62**	**<.001**	**0.032**	**-0.28**	**-22.26**	**<.001**	**0.071**
CBCL OCS	**-0.04**	**-3.71**	**<.001**	**0.002**	**0.04**	**3.94**	**<.001**	**0.002**
Random Effects								
Residual Variance (σ^2)	0.81				0.75			
Variance $_{Family:MRI}$	0.12				0.10			
Variance $_{MRI}$	0.03				0.06			
ICC	0.16				0.17			
N $_{Family}$	6385				6385			
N $_{Site}$	26				26			
N total	7330				7330			
df	7314				7314			
Marginal R^2 / Conditional R^2	.045 / .194				.098 / .253			

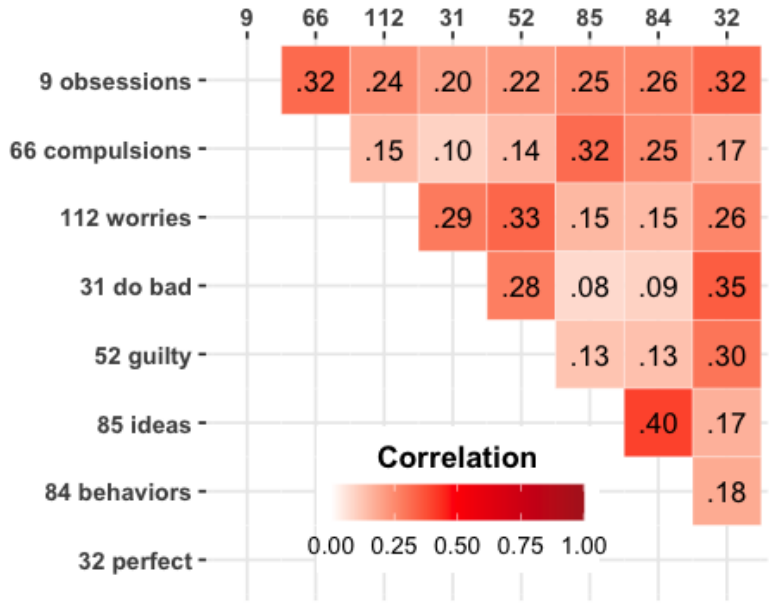
Note. A linear mixed effects model was used to predict resting state connectivity within the dorsal attention network (DAN) and between the DAN and default mode network (DMN). Standardized beta coefficients are presented for each predictor along with their corresponding t, p, and partial eta-squared effect sizes (η^2_p). Significant effects are in bold. Marginal R^2 indicates the variance accounted for by the fixed effects; conditional R^2 indicates the variance accounted for by the fixed and random effects. Minimal collinearity was detected–all variance inflation factors <1.84.

Figure S1: Correspondence between CBCL OCS Sum and T-Scores



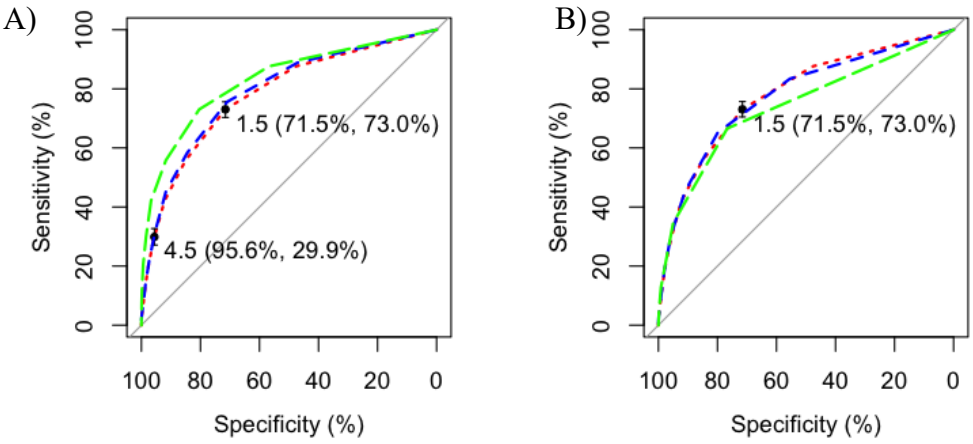
Note. The correspondence between 8-item CBCL OCS subscale sum scores and age-/sex-normed T-scores is presented here. All 9- and 10-year-olds fall in the same age-norm bracket. N=8 participants were missing sum scores and n=12 were missing T-scores. Sex-specific norms were applied at sum scores of 3, 4, and 5.

Figure S2: Inter-correlation Among CBCL OCS Items



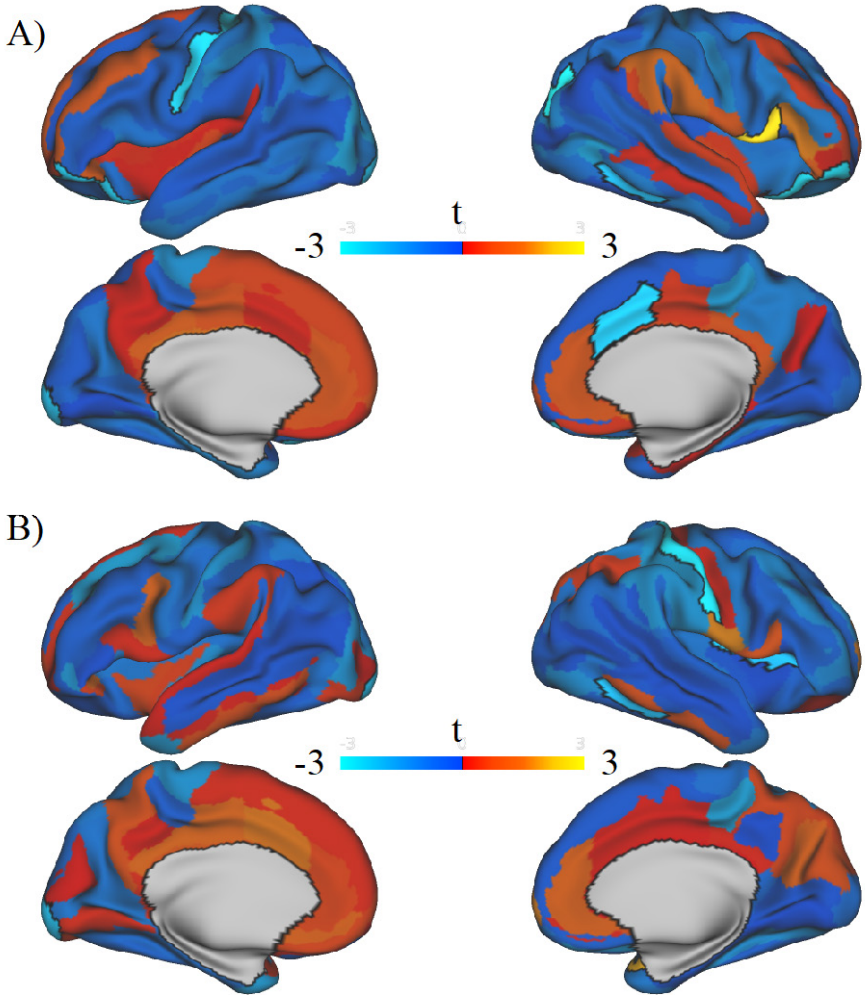
Note. The inter-correlation among the 8 CBCL OCS items is presented here. Spearman's rank correlation values are presented in each cell, given the ordinal and non-normal nature of the CBCL item scores. All correlations were p<.001 significant. N=11,868.

Figure S3: ROC Analyses with Different OCS Subscale Formulations



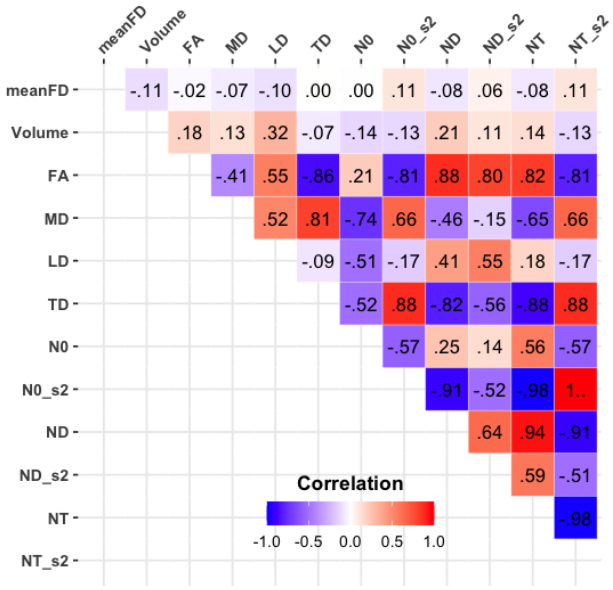
Note. Results of the ROC analyses are displayed visually here. Panel A shows the main analyses examining the 8-item OCS subscale comparing children with vs. without lifetime OCD in the full sample (red line), children with vs. without current OCD in the full sample (blue line), and children with lifetime OCD vs. only those with no diagnoses (green line). The optimal threshold of >1 and the ≥5 threshold from prior work are denoted here as 1.5 and 4.5 respectively. Panel B shows analyses comparing the three suggested OCS subscale formulations comparing children with vs. without lifetime OCD in the full sample: 8-item (red, as in panel A), 6-item (blue), 2-item (green).

Figure S4: Linear Mixed-Effects Model Analyses Predicting Cortical Thickness



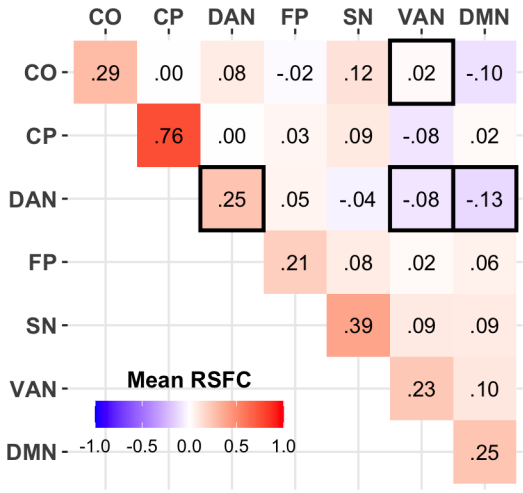
Note. The t-statics from linear mixed effects models examining cortical thickness are represented here; for full statistics, see Table S10. A) OCS associations with cortical thickness. B) OCD associations with cortical thickness (t- statistic range -3 to 3). Effects at $p<.05$ are highlighted.

Figure S5: Inter-correlation Between Diffusion Metrics



Note. The Pearson correlations between all diffusion metrics are displayed here from the full sample of children with good data, extracted for the parietal portion of the left SCS. All correlations significant at p<.001 (except between mean FD and FA [p<.05], TD [ns], and N0 [ns]).

Figure S6: Mean Resting State Connectivity Values Between Networks of Interest



Note. Mean resting state functional connectivity (RSFC) values are presented averaging across the sample of children with good data. The four network-level connections that related to OCS are enclosed in bold boxes.