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Gastrointestinal and Toileting Symptoms Across Pediatric OCD and Tic Disorders: A Retrospective Chart Review

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Abstract

Chronic tic disorders, obsessive–compulsive disorder (OCD), as well as an intriguing intermediary group with comorbid tics and OCD (Tics & OCD) share a striking overlap in neurocircuitry and genetic risk factors, with environmental and epigenetic influences contributing to different clinical presentations. A retrospective chart review of gastrointestinal complaints in patients with Tics (n = 189), OCD (n = 165), and co-occurring Tics & OCD (n = 106) aged 6–22 years seen at Boston Children's Hospital (2019–2025) was conducted. After adjusting for age and sex, significant group differences in constipation and abdominal pain were observed. Compared to the Tics group, patients with OCD had higher odds of constipation (OR = 2.33, 95% CI = 1.38–3.99, p = 0.002) and abdominal pain (OR = 2.07, 95% CI = 1.16–3.71, p = 0.015). The association with the abdominal pain was attenuated after adjustment for comorbid depression and SSRI use; however constipation remained significant (OR = 1.90, 95% CI = 1.06–3.38, p = 0.030). These findings support routine GI and toileting screening in the clinical evaluation of pediatric patients with OCD. Future prospective studies are needed to clarify the contribution of psychiatric comorbidity to GI and toileting symptoms in pediatric patients with OCD.

Keywords: obsessive–compulsive disorder; Tic disorders; Tourette syndrome; gastrointestinal disorders; toileting issues; constipation; abdominal pain

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1. Introduction

Obsessive–compulsive disorder (OCD) and chronic tic disorders, including Tourette syndrome (TS), are neurodevelopmental conditions that typically begin in childhood or adolescence. OCD is characterized by persistent, intrusive thoughts (obsessions) and repetitive behaviors or mental acts (compulsions) performed to relieve distress [1]. Anxiety is central to the disorder, driving the cycle of obsessions and compulsions [2]. In contrast, tics are sudden, non-rhythmic, recurrent movements or vocalizations, such as eye blinking or throat clearing, that are typically preceded by a premonitory urge[1] but are not associated with anxious distress. These disorders are closely linked both genetically and pathophysiologically. Genetically, they have very high rates of comorbidity and cross-heritability; specifically, it is estimated that up to 50% of youth with tic disorders meet diagnostic criteria for OCD, and 25–30% of those with OCD have a co-occurring tic disorder [3–5].

Individuals with either OCD or tic disorders are very likely to have a first degree relative with the alternative disorder, as multiple studies have observed significant cross-disorder risk and familial clustering of these disorders [6–9]. Pathophysiologically, dysfunction in the cortico-striatal-thalamo-cortical (CSTC) circuit drives both conditions [10,11]. However, what determines whether a child develops tics, OCD, or both is still unclear. Additionally, when the conditions co-occur, patients report symptoms that lie in the middle of typical tics and OCD compulsions [12]. For example, those with co-occurring OCD and TS tend to report higher rates of physical, bodily sensations preceding their OCD compulsions (more akin to the premonitory urge of tics) as compared to those with OCD alone who typically present with anxious mental distress but fewer physical sensations [12–14]. Additionally, patients with co-occurring OCD and TS have higher rates of certain subsets of compulsions, such as tapping/touching/or rubbing are more akin to complex tics, as well as hoarding behaviors, counting rituals, and intrusive violent or sexual thoughts [14]. Additionally, the factors that attenuate symptom severity remain unclear, though adults with co-occurring tics and OCD typically present with more severe symptoms in each category, require multi-modal treatment, and are often more treatment refractory [10,13,14].

Recent research has suggested that tic and obsessive–compulsive spectrum disorders may be affected by dysbiosis of the gut microbiome due to bidirectional signaling of the gut–brain axis [15–17]. Gut dysbiosis has been implicated in the disease course of many neuropsychiatric and systemic conditions, including constipation [18–21]. While the present study did not collect microbiome data, we assessed clinically documented GI and toileting issues and whether their prevalence differs across pediatric patients with tics, OCD, and co-occurring tics and OCD.

It is well-established that individuals with OCD have an increased prevalence of GI disorders and toileting issues, particularly irritable bowel syndrome and functional constipation [22–26]. However, despite the neuropathophysiology and genetic overlap between tics and OCD, similar findings have not yet been reported in individuals with tic disorders. We hypothesized that there may be similarly elevated rates of comorbid GI conditions present in individuals with tics given the genetic and pathophysiologic overlap of these disorders. On the other hand, differences between individuals with tics as compared to those with OCD could point to meaningful clinical and neuropathological distinctions between these conditions.

The present study aimed to retrospectively evaluate and compare the prevalence of GI symptoms and toileting issues in three groups of individuals: those with tic disorders, those with OCD, and those with co-occurring tics and OCD. The GI symptoms assessed included abdominal pain, inflammatory bowel disease (e.g., Crohn's disease, ulcerative colitis), celiac disease, chronic vomiting, and gastroesophageal reflux disease (GERD). The toileting concerns assessed included enuresis, encopresis, constipation, and diarrhea.

2. Materials and Methods

This retrospective chart review included patients aged 6 to 22 years at the time of last clinical visit, seen in the Departments of Neurology and/or Psychiatry at Boston Children's Hospital between 2019 and 2025.

Patients were identified using the International Classification of Diseases 9th revision (ICD-9) and 10th revision (ICD-10) diagnosis codes, used by healthcare providers to classify medical conditions. Diagnosis was confirmed through chart review. Patients were categorized into three groups: (1) Tics, (2) OCD, and (3) Tics & OCD. Those in the OCD category had a diagnosis in the OCD spectrum disorders including obsessive–compulsive disorder, mixed obsessional thoughts and acts, unspecified obsessive–compulsive disorder, and

other obsessive–compulsive disorder. Tic disorders included Tourette syndrome; chronic motor or vocal tic disorder; and tic disorder, unspecified.

Patients were excluded from analysis if there was insufficient information in the chart or if diagnosed with Pediatric Acute-onset Neuropsychiatric Disorders Associated with Streptococcus (PANDAS), Pediatric Acute-onset Neuropsychiatric Syndrome (PANS), nonverbal autism, or the presence of a G tube/J tube. Those with PANDAS were excluded due to the proposed immune-related etiological origin which does not represent the typical neurodevelopmental origin of tics and OCD. Similarly, patients with functional tic-like behaviors were excluded, either based on provider diagnosis or documented characteristics suggestive of a functional neurologic disorder as the etiology of these conditions also does not represent the typical neurodevelopmental origin of tic disorders.

Charts were reviewed for demographic data, age of symptom onset, comorbidities including attention deficit hyperactivity disorder (ADHD), anxiety, autism spectrum disorder, depression, toileting issues, and GI conditions as documented by provider notes or through ICD codes. De-identified patient information was recorded in REDCap, a HIPAA-compliant electronic data capture platform.

3. Data Analyses

A binary logistic regression model was used to test whether diagnostic-group membership (Tics, OCD, co-occurring Tics & OCD) was associated with the likelihood of each GI or toileting outcome. The primary model adjusted for age and sex, which were specified a priori as confounders given their established associations with both diagnostic prevalence and bowel function. Diagnostic group was entered as a three-level categorical variable represented by two dummy (indicator) codes, with the Tics only group as the reference category: $D_1 = 1$ for OCD only (0 otherwise) and $D_2 = 1$ for co-occurring Tics & OCD (0 otherwise). Age was entered as a continuous variable in years, and sex was coded 1 = male, 2 = female, so that the sex coefficient reflects the odds for females relative to males. No interaction terms were included. The following logistic model was applied to the data:

$$\text{logit}[P(\text{outcome} = 1)] = \beta_0 + \beta_1 \cdot D_1(\text{OCD}) + \beta_2 \cdot D_2(\text{Tics \& OCD}) + \beta_3 \cdot \text{age} + \beta_4 \cdot \text{sex}$$

β_1 and β_2 represent the change in the log-odds of the outcome for the OCD and Tics & OCD groups, respectively, relative to the Tics only reference group; exp(β) gives the corresponding adjusted odds ratio. The OCD versus co-occurring Tics & OCD contrast was obtained by re-fitting the identical model with the OCD group as the reference category.

The model was run for five dependent variables related to GI and toileting function: (a) GI issues, (b) toileting issues, (c) abdominal pain, (d) constipation, and (e) enuresis. Encopresis, celiac disease, diarrhea, inflammatory bowel disease, GERD, chronic vomiting, and irritable bowel syndrome were not evaluated because they did not have sufficient numbers to assess.

Diagnostic-group differences were expressed as adjusted odds ratios with 95% confidence intervals, with the Tics group as reference. Because five GI and toileting outcomes were examined, the primary OCD-vs-Tics contrasts were corrected for multiple comparisons using the Benjamini–Hochberg false discovery rate using an alpha level of 5%. To make the clinical magnitude interpretable, we also computed model-based adjusted predicted probabilities for each group, standardized to the sample's age and sex distribution, with 95% confidence intervals from a nonparametric bootstrap (2000 resamples). Anxiety was not included as a covariate because it is intrinsic to the OCD phenotype and, thus, is difficult to distinguish from OCD-related anxiety; it therefore functions as a component of the exposure rather than an independent confounder, and adjusting for it would remove variance attributable to OCD itself. To assess robustness, we pre-specified a sensitivity

analysis that additionally adjusted for depression and SSRI use, the factors most likely to provide an alternative explanation for group differences in GI symptoms. Depression and SSRI use were entered together; their low collinearity ($\varphi = 0.33$; variance inflation factor ≈ 1.3) confirmed that a single combined model, rather than separate models, was appropriate. Age and sex remained the covariates in the primary model.

Because the sample size was fixed by the number of eligible records rather than a priori, we report a sensitivity power analysis rather than an a priori or post hoc power calculation. For each outcome we determined the smallest group difference detectable with 80% power at a two-tailed alpha of 0.05, given the realized group sizes, the observed base rate in the Tics reference group, and the loss of precision from adjusting on age and sex. Minimum detectable odds ratios are reported in Supplemental Table S1.

4. Results

A total of 460 patients met inclusion criteria: Tics (n = 189), OCD (n = 165), and co-occurring Tics & OCD (n = 106). Age differed significantly between groups ($F(2, 457) = 23.34$, $p < 0.001$); patients in the OCD group were older on average (15.21 years) than those in the Tics group (12.88 years). The groups also differed in sex ($\chi^2(2, N = 460) = 71.13$, $p < 0.001$), with a higher proportion of females in the OCD group (66.1%) than in the Tics (21.7%) and co-occurring Tics & OCD (41.5%) groups. Among comorbid conditions, anxiety differed significantly between groups ($\chi^2(2, N = 460) = 73.19$, $p < 0.001$; 84.8% of OCD, 49.2% of Tics, and 87.7% of Tics & OCD), as did depression ($\chi^2(2, N = 460) = 75.39$, $p < 0.001$; 53.3% of OCD, 10.6% of Tics, and 35.8% of co-occurring Tics & OCD). SSRI use likewise differed markedly across groups ($\chi^2(2, N = 460) = 103.80$, $p < 0.001$), prescribed to 78.2% of the OCD group and 78.3% of the co-occurring Tics & OCD group versus 30.7% of the Tics group (see Table 1).

Table 1. Demographic and clinical characteristics by diagnostic group. Percentages are within diagnostic group; race was documented for 409 patients. Group differences were tested by one-way ANOVA (age) and Pearson χ^2 (categorical variables).

Variable	Level	Tics (n = 189)	OCD (n = 165)	Co-Occurring Tics & OCD (n = 106)	Test Statistic	*p*
Age	Mean (SD)	12.88 (3.28)	15.21 (3.22)	14.07 (3.02)	$F(2, 457) = 23.34$; $\eta^2 = 0.09$	<0.001
Gender	Male, n (%)	148 (78.3)	56 (33.9)	62 (58.5)	$\chi^2(2, N = 460) = 71.13$; $V = 0.39$	<0.001
	Female, n (%)	41 (21.7)	109 (66.1)	44 (41.5)		
Race (documented for n = 409)						
White/ Caucasian	Yes, n	143	124	81	$\chi^2(2, N = 409) = 2.16$	0.34
	No, n	19	25	17		
Black/African American	Yes, n	5	12	5	$\chi^2(2, N = 409) = 3.78$	0.15
	No, n	157	137	93		
Asian	Yes, n	6	7	5	$\chi^2(2, N = 409) = 0.33$	0.85
	No, n	156	142	93		
Other	Yes, n	10	13	7	$\chi^2(2, N = 409) = 0.75$	0.68
	No, n	152	136	91		
Comorbid conditions (n = 460)						
ADHD	Yes, n (%)	108 (57.1)	63 (38.2)	65 (61.3)	$\chi^2(2, N = 460) = 18.21$; $V = 0.20$	<0.001
	Unspecified, n (%)	81 (42.9)	102 (61.8)	41 (38.7)		
Anxiety disorder	Yes, n (%)	93 (49.2)	140 (84.8)	93 (87.7)	$\chi^2(2, N = 460) = 73.19$; $V = 0.40$	<0.001
	Unspecified, n (%)	96 (50.8)	25 (15.2)	13 (12.3)		
Autism	Yes, n (%)	19 (10.1)	24 (14.5)	19 (17.9)	$\chi^2(2, N = 460) = 3.86$; $V = 0.09$	0.145

Table 1. *Cont.*

Variable	Level	Tics (n = 189)	OCD (n = 165)	Co-Occurring Tics & OCD (n = 106)	Test Statistic	*p*
	Unspecified, n (%)	170 (89.9)	141 (85.5)	87 (82.1)		
Depression	Yes, n (%)	20 (10.6)	88 (53.3)	38 (35.8)	$\chi^2(2, N = 460) = 75.39$; V = 0.40	<0.001
	Unspecified, n (%)	169 (89.4)	77 (46.7)	68 (64.2)		
SSRI use	Yes, n (%)	58 (30.7)	129 (78.2)	83 (78.3)	$\chi^2(2, N = 460) = 103.80$; V = 0.48	<0.001
	Unspecified, n (%)	131 (69.3)	36 (21.8)	23 (21.7)		

In the primary age- and sex-adjusted models, the OCD group had significantly higher odds than the Tics group of constipation (OR = 2.33, 95% CI = 1.38–3.99, $p = 0.002$), toileting issues (OR = 2.21, 95% CI = 1.33–3.67, $p = 0.002$), abdominal pain (OR = 2.06, 95% CI = 1.16–3.71, $p = 0.015$), and overall GI issues (OR = 1.69, 95% CI = 1.00–2.85, $p = 0.050$). The co-occurring Tics & OCD group did not differ significantly from the Tics group on any outcome, nor did the OCD and co-occurring Tics & OCD groups differ from each other (Table 2). Because five outcomes were tested, the primary OCD-vs-Tics contrasts were corrected for multiple comparisons using the Benjamini–Hochberg false discovery rate; constipation and toileting issues (q = 0.005) and abdominal pain (q = 0.025) remained significant, whereas overall GI issues (q = 0.056) did not. To convey clinical magnitude, adjusted predicted probabilities standardized to the sample's age and sex distribution indicated, for example, a constipation probability of 38.4% (95% CI 30.9–46.2) in the OCD group versus 21.3% (15.4–27.2) in the Tics group—an adjusted difference of 17.0 percentage points (95% CI 6.8–27.0); predicted probabilities for all outcomes are reported in Table 3. Additionally adjusting for depression and SSRI use, the elevated odds of constipation in the OCD group persisted (OR = 1.90, 95% CI = 1.06–3.38, $p = 0.030$); SSRI use was not independently associated with any outcome (all ps > 0.34), whereas depression was independently associated with constipation, toileting issues, and abdominal pain (see Table 4).

Table 2. The primary logistic regression results (adjusted for age and sex): the diagnostic-group contrasts for each outcome. Reference categories as shown. * $p < 0.05$. After Benjamini–Hochberg correction across the five OCD-vs-Tics contrasts, constipation and toileting issues (q = 0.005) and abdominal pain (q = 0.025) remained significant; overall GI issues (q = 0.056) did not.

Ref. Group	Group	β	SE	*p*	OR	95% CI
GI Issues						
Tics only	OCD	0.522	0.266	0.050	1.69	1.00–2.85
Tics only	Tics & OCD	0.022	0.293	0.939	1.02	0.57–1.81
OCD only	Tics & OCD	−0.500	0.285	0.079	0.61	0.34–1.05
Toileting Issues						
Tics only	OCD	0.791	0.258	0.002 *	2.21	1.33–3.67
Tics only	Tics & OCD	0.430	0.269	0.110	1.54	0.91–2.61
OCD only	Tics & OCD	−0.360	0.266	0.176	0.70	0.41–1.17
Constipation						
Tics only	OCD	0.847	0.270	0.002 *	2.33	1.38–3.99
Tics only	Tics & OCD	0.436	0.286	0.128	1.55	0.88–2.71
OCD only	Tics & OCD	−0.411	0.276	0.137	0.66	0.38–1.13

Table 2. *Cont.*

Ref. Group	Group	β	SE	*p*	OR	95% CI
Enuresis						
Tics only	OCD	0.870	0.455	0.056	2.39	0.98–5.96
Tics only	Tics & OCD	0.435	0.492	0.370	1.54	0.57–4.03
OCD only	Tics & OCD	−0.436	0.467	0.351	0.65	0.25–1.57
Abdominal Pain						
Tics only	OCD	0.721	0.296	0.015 *	2.06	1.16–3.71
Tics only	Tics & OCD	0.121	0.333	0.716	1.13	0.58–2.16
OCD only	Tics & OCD	−0.600	0.312	0.055	0.55	0.29–1.00

Table 3. The adjusted predicted probabilities of each outcome by diagnostic group, from the age- and sex-adjusted models, standardized to the sample covariate distribution (average marginal predictions; 95% bootstrap CIs, 2000 resamples).

Outcome	Tics Only	OCD Only	Co-Occurring Tics & OCD	Adj. Diff, OCD − Tics (95% CI)
GI Issues	24.2% [17.8, 31.0]	34.8% [27.6, 42.6]	24.6% [16.8, 33.2]	+10.5 pts [−0.2, 21.5]
Toileting Issues	26.0% [20.0, 32.8]	43.5% [35.7, 51.9]	35.1% [25.6, 44.8]	+17.4 pts [6.5, 28.2]
Constipation	21.3% [15.4, 27.2]	38.4% [30.9, 46.2]	29.4% [20.8, 38.2]	+17.0 pts [6.8, 27.0]
Enuresis	5.1% [2.3, 8.4]	11.3% [6.5, 16.8]	7.6% [2.8, 13.1]	+6.1 pts [0.3, 12.6]
Abdominal Pain	16.3% [10.6, 22.4]	28.4% [21.5, 36.0]	18.0% [10.9, 25.5]	+12.4 pts [2.4, 22.1]

Table 4. Sensitivity analysis—full logistic regression coefficients additionally adjusting for depression and SSRI use. * $p < 0.05$. OCD-vs-Tics association with constipation persisted (OR = 1.90, $p = 0.030$); SSRI use was not independently associated with any outcome.

Term	β	SE	*p*	OR	95% CI
GI Issues (n = 460)					
OCD vs. Tics	0.333	0.292	0.254	1.40	0.79–2.47
Tics & OCD vs. Tics	−0.129	0.315	0.682	0.88	0.47–1.63
Age	−0.001	0.035	0.983	1.00	0.93–1.07
Sex	0.353	0.232	0.129	1.42	0.90–2.24
Depression (Yes)	0.439	0.253	0.083	1.55	0.94–2.55
SSRI use (Yes)	0.151	0.253	0.551	1.16	0.71–1.91
Tics & OCD vs. OCD	−0.462	0.287	0.108	0.63	0.36–1.11
Toileting Issues (n = 460)					
OCD vs. Tics	0.544	0.281	0.053	1.72	0.99–2.99
Tics & OCD vs. Tics	0.229	0.291	0.431	1.26	0.71–2.23
Age	−0.089	0.034	0.009 *	0.92	0.86–0.98
Sex	0.150	0.223	0.500	1.16	0.75–1.80

Table 4. *Cont.*

Term	β	SE	*p*	OR	95% CI
Depression (Yes)	0.571	0.245	0.020 *	1.77	1.10–2.86
SSRI use (Yes)	0.225	0.240	0.348	1.25	0.78–2.00
Tics & OCD vs. OCD	−0.315	0.270	0.244	0.73	0.43–1.24
Constipation (n = 460)					
OCD vs. Tics	0.640	0.295	0.030 *	1.90	1.06–3.38
Tics & OCD vs. Tics	0.276	0.309	0.372	1.32	0.72–2.41
Age	−0.094	0.036	0.009 *	0.91	0.85–0.98
Sex	0.350	0.231	0.130	1.42	0.90–2.23
Depression (Yes)	0.540	0.254	0.034 *	1.72	1.04–2.82
SSRI use (Yes)	0.141	0.252	0.576	1.15	0.70–1.89
Tics & OCD vs. OCD	−0.364	0.280	0.193	0.70	0.40–1.20
Enuresis (n = 460)					
OCD vs. Tics	0.659	0.499	0.187	1.93	0.73–5.15
Tics & OCD vs. Tics	0.283	0.530	0.593	1.33	0.47–3.75
Age	−0.113	0.060	0.061	0.89	0.79–1.01
Sex	−0.363	0.398	0.362	0.70	0.32–1.52
Depression (Yes)	0.686	0.428	0.109	1.99	0.86–4.60
SSRI use (Yes)	0.028	0.423	0.948	1.03	0.45–2.36
Tics & OCD vs. OCD	−0.376	0.471	0.424	0.69	0.27–1.73
Abdominal Pain (n = 460)					
OCD vs. Tics	0.539	0.325	0.097	1.71	0.91–3.24
Tics & OCD vs. Tics	−0.003	0.357	0.994	1.00	0.49–2.01
Age	−0.014	0.039	0.714	0.99	0.91–1.06
Sex	0.379	0.257	0.139	1.46	0.88–2.42
Depression (Yes)	0.642	0.276	0.020 *	1.90	1.11–3.26
SSRI use (Yes)	−0.017	0.282	0.952	0.98	0.57–1.71
Tics & OCD vs. OCD	−0.542	0.316	0.086	0.58	0.31–1.08

5. Discussion

This retrospective chart review is the first systematic comparison of gastrointestinal and toileting issues across pediatric patients with tics, OCD, and co-occurring tics and OCD. The most prominent findings were higher odds, both with regard to constipation (OR = 2.33 CI =1.38–3.99, $p = 0.002$) and abdominal pain (OR = 2.06 CI = 1.16–3.71, $p = 0.015$) in the OCD group compared to the Tics only group. Constipation was the most prevalent toileting issue, affecting 37.6% of OCD patients versus 22.2% of those in theTics only group. The significant differences between the groups seen for GI issues and toileting issues overall primarily reflect the differences seen in the subcategories of abdominal pain and constipation, respectively. The parallel increases in both constipation and abdominal pain within the OCD group may reflect a causal relationship, as constipation is a well-established contributor to abdominal pain [27,28].

Elevated rates of constipation in the OCD group, as compared to the Tic group, are consistent with the prior literature that demonstrates a relationship between OCD and

functional constipation [25,26]. Given the retrospective nature of our study, we were unable to determine whether the constipation noted was functional or organic. The increased prevalence of constipation in patients with OCD may be attributable to contamination fears and withholding behaviors aimed at delaying elaborate cleaning rituals.

The significant difference in the rate of constipation in patients with OCD versus tics but the lack of difference between the Tics and co-occurring Tics & OCD group, warrants some consideration. One might expect that tics and OCD might impact rates of comorbidities independently, such that the co-occurring Tics & OCD group would have significantly elevated rates of constipation due to the presence of OCD. However, prior research suggests that OCD with comorbid tics is a distinct subtype [29–31], and the higher rates of constipation in children with OCD only may reflect these clinical differences, although larger studies with greater statistical power are needed to fully elucidate a distinct subtype.

Several comorbid and treatment-related factors could contribute to elevated GI symptoms in OCD. The primary analyses adjusted for age and sex, which were specified a priori given the potential impact of age on constipation and established sex-related differences in constipation and in the prevalence of tic disorders and OCD [32–34]. Anxiety was deliberately not included as a covariate. Anxiety is intrinsic to the OCD phenotype—although anxiety can occur without OCD, clinically significant OCD is nearly always accompanied by anxiety—so it is not independent of the diagnostic grouping and functions as a component of the exposure rather than an external confounder; adjusting for it would remove variance attributable to OCD itself. Consistent with anxiety behaving as an intermediate rather than a confounder, its inclusion in exploratory models further attenuated the diagnostic-group effects. Because depression and selective serotonin reuptake inhibitor (SSRI) use are common in OCD and have themselves been linked to GI symptoms [35–37], we conducted a pre-specified sensitivity analysis additionally adjusting for both. The elevated odds of constipation in the OCD group persisted (OR = 1.90, 95% CI = 1.06–3.38, $p = 0.030$), indicating that this association is not explained by mood comorbidity or antidepressant exposure; SSRI use was not independently associated with any outcome (all $p > 0.34$). Depression was independently associated with constipation, toileting issues, and abdominal pain, and its inclusion attenuated the group differences for toileting issues and abdominal pain to non-significance—an attenuation expected given that depression is highly comorbid with, and often secondary to, OCD and therefore lies partly on the causal pathway between diagnosis and GI symptoms rather than acting purely as an independent confounder. This finding is also consistent with previous research showing that individuals with depressive symptoms have more severe OCD symptoms [38].

Several limitations should be acknowledged. As a retrospective chart review, our study relies on documented clinical encounters and may underestimate mild or unreported GI and toileting issues. The lack of a control group limits our ability to establish absolute risk across diagnostic categories, and the single-center design may reduce generalizability to more diverse populations. Although we adjusted for SSRI use, we were unable to account for other potential confounders such as dietary factors or family history of gastrointestinal disorders, which may influence the observed associations. Variability in documentation and clinical focus across providers is another concern, as clinicians evaluating OCD may be more likely to assess for constipation and other psychiatric conditions than those treating tic disorders. Furthermore, conditions not documented in the medical record were classified as "not specified," which may introduce mis-classification bias since the absence of documentation does not confirm the absence of a condition. Additionally, because several outcomes were examined, associations near the conventional threshold (e.g., overall GI issues, $p = 0.050$) should be regarded as hypothesis-generating; we mitigated this with false-discovery-rate correction. More broadly, several candidate covariates—most notably

anxiety and, to a lesser degree, depression—are so tightly bound to the OCD phenotype that they likely act as intermediates rather than independent confounders, so adjustment for them may underestimate the total effect of diagnostic group, and residual confounding cannot be excluded. Prospective studies that assess GI and toileting issues are needed to address these limitations. Finally, statistical power varied across outcomes but generally the available sample sizes allowed detection of odds ratios of approximately 2.1 or larger. For enuresis the low base rate meant that only odds ratios above approximately 3.6 were detectable, so the non-significant estimate for that outcome should be read as inconclusive rather than as evidence against an association (Supplementary Table S1).

6. Conclusions

These findings support the incorporation of routine GI and toileting screening into standard evaluation and management protocols for pediatric OCD, in particular, for constipation. Constipation was more common in the OCD group than in the Tics group, and it remained statistically significant after adjustment for depression and SSRI use. Future prospective studies are needed to further elucidate the complex interplay among OCD and depression and GI and toileting symptoms.

Supplementary Materials: The following supporting information can be downloaded at https://www.mdpi.com/article/10.3390/psychiatryint7050229/s1, Table S1: Sensitivity power analysis.

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