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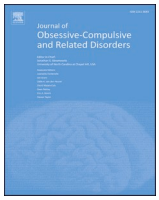

OCD with and without tics: Differences in symptoms, suicidality, co-occurring mental health conditions, and treatment perceptions

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A B S T R A C T

Objective: Obsessive–compulsive disorder (OCD) and tics frequently co-occur, particularly among youth. However, limited research has examined how OCD presentations differ in adults with and without tics, especially among Latino populations, who are underrepresented in both the OCD and tics literature. This study investigated how tic history relates to OCD symptom presentation, suicide-related features (i.e., ideation, intent, plan, and attempts), co-occurring conditions, and perceived effectiveness of selective serotonin reuptake inhibitors (SSRIs) and exposure and response prevention (ERP) in an international, multi-site sample of Latino adults with OCD.

Method: Participants were 3224 Latino adults with clinically significant OCD symptoms.

Results: Nearly 14% met criteria for a lifetime tic-related disorder. Those with tics more frequently endorsed "just-right" symptoms (e.g., touching/tapping, counting, repeating), higher rates of suicidal ideation, planning, and attempts, and greater prevalence of depressive, obsessive-compulsive-related, and eating disorders. Perceived ERP effectiveness was higher among those without tics, whereas perceived SSRI effectiveness did not differ between groups. All effect sizes were small.

Conclusions: Latino adults with OCD and tics exhibited a partially distinct profile marked by more "just-right" symptoms, greater suicidality, more co-occurring conditions, and lower perceived ERP effectiveness but comparable perceived SSRI benefit. The small effect sizes suggest that targeted refinements to address these areas may yield meaningful improvements for those with OCD and tics, although our results do not advise that major treatment changes are warranted.

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Obsessive-compulsive disorder (OCD) is a mental health condition marked by obsessions (repetitive and unwanted intrusive thoughts, images, or urges) and/or compulsions (repetitive behaviors or mental acts performed to reduce distress; American Psychiatric Association, 2022; World Health Organization, 2023), which can run chronic in the absence of effective treatment. OCD affects nearly 2% of individuals over their lifetime (American Psychiatric Association, 2022), is linked with a decreased quality of life (Storch et al., 2018) and can lead to significant distress and impairment in daily functioning (Huppert et al., 2009).

One notable co-occurring symptom with OCD is tics (i.e., sudden and repetitive motor movements or vocalizations). Tics and OCD symptoms are each associated with impaired functioning (Kano et al., 2015). Based on specific developmental, familial, and clinical features (Leckman et al., 2010), the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) introduced a "tic-related" specifier for OCD to indicate current or past tic disorders (American Psychiatric Association, 2013), though tic-related disorders themselves are classified as neurodevelopmental disorders. Tics are common in pediatric OCD, with some estimates as high as 53% among children (Geller et al., 2003). Although tics can diminish by adulthood, adults can continue to experience tics (Jalenques et al., 2024).

1. OCD symptom presentation

OCD is heterogeneous, with obsessive and compulsive themes spanning multiple content domains, including contamination fears, taboo thoughts, symmetry concerns, and more (Cervin et al., 2022). Relative to adults with OCD and no tics, adults with OCD and tics endorse higher rates of obsessions related to aggressive, sexual, religious, hoarding, and symmetry-related themes, as well as heightened "just-right" experiences (De Alvarenga et al., 2012; Katz et al., 2022). As for compulsions, those with OCD and tics (compared to those with OCD and no tics) are more likely to endorse repetitive motoric behaviors such as rubbing or tapping and are less likely to endorse cleaning or checking rituals (De Alvarenga et al., 2012; Holzer et al., 1994; Katz et al., 2022).

1.1. Suicidality and Co-occurring mental health conditions

Adults with OCD and tics can exhibit a complex clinical presentation characterized by elevated rates of additional mental health conditions, including more suicidal thoughts and behaviors. Individuals with OCD demonstrate higher rates of suicidal ideation and attempts relative to the general population (Angelakis et al., 2015; Benster et al., 2022). For instance, a systematic review by Albert and colleagues (2019) found mean rates of current suicidal ideation at 25.9% and lifetime suicide attempts at 14.2% among individuals with OCD. Suicide risk in OCD may also vary as a function of symptom severity and related psychological processes. For example, a difficulty identifying feelings (a feature of alexithymia) and inflated responsibility have been associated with suicidal ideation among adults with OCD, including after accounting for depressive symptoms (De Berardis et al., 2014, 2015). Similarly, suicide-related features are also relatively common among individuals with tic disorders, with studies documenting both direct and indirect associations between tic severity and suicidality (Cruz et al., 2017; Dávila et al., 2010).

Individuals with Tourette's syndrome (TS; characterized by the presence of multiple motor tics and at least one vocal tic) or persistent (chronic) tic disorder (characterized by the presence of either motor or vocal tics; American Psychiatric Association, 2022; World Health Organization, 2023), exhibit up to a fourfold increase in suicide risk compared with controls, even after adjusting for co-occurring conditions (Cruz et al., 2017). These findings indicate that both OCD and tic disorders independently confer risk for suicidality. Yet, research directly examining suicidality in those with OCD and tics remains limited. In one study, Benatti and colleagues (2021) reported that individuals with OCD and tics had comparable levels of suicidal ideation to those with OCD alone but significantly higher rates of suicide attempts, suggesting that the presence of tics may potentiate the likelihood of more severe suicidal outcomes.

Beyond suicidality, adults with both OCD and tics may have elevated rates of co-occurring mental health conditions compared to those with OCD but without tics. Among individuals with TS, 85.7% meet criteria for at least one additional psychiatric disorder, and 57.7% meet criteria for two or more (Hirschtritt et al., 2015). Relative to non-tic OCD groups, individuals with OCD and tics experience higher rates of depression (Abbasi et al., 2023), bipolar disorder (Kerbeshian & Klug, 1995), body-focused repetitive behaviors (Bhikram et al., 2019; Greenberg et al., 2018), and avoidant or restrictive food-related behaviors (Smith et al., 2022). Collectively, this literature suggests that both OCD and tic disorders are associated with psychiatric risk.

1.2. Perceived treatment effectiveness

Although symptom profiles can vary between adults with OCD and no tics compared to those with OCD and tics, selective serotonin reuptake inhibitors (SSRIs) remain a first-line pharmacological treatment for OCD (Franklin et al., 2012). Research examining SSRI response among individuals with OCD and tics has largely focused on youth, with relatively fewer studies in adults; however, across both age groups, findings indicate a weaker response to SSRI monotherapy compared to those with OCD without tics (Jalenques et al., 2024; Kloft et al., 2018). For example, clinician-rated outcomes indicate that only 29% of individuals with tics responded positively to SSRIs, which is significantly lower than response rates observed among those without tics (Jalenques et al., 2024). However, few studies have examined whether individuals with OCD and tics perceive SSRI responses differently from those without tics[2] in large, non-White samples (Cohen et al., 2025; Spencer et al., 2025).

Exposure and response prevention (ERP), a form of cognitive-behavioral therapy (CBT), is a first-line psychotherapy treatment for OCD and tic-related disorders (Yan et al., 2022). In OCD, ERP involves repeated, planned exposure to distress-provoking stimuli while refraining from compulsions and avoidance behaviors. In tic-related disorders, ERP involves exposure to premonitory urges while practicing tic suppression for progressively longer periods. Across OCD and tic-related disorders, ERP therefore emphasizes increasing awareness of internal cues and practicing tolerating discomfort without engaging in the urge-driven behavior. Prior youth-focused studies found that tic status did not significantly affect CBT/ERP outcomes (Himle et al., 2003; March et al., 2007; Piacentini et al., 2002; Skarphedinsson et al., 2015; Storch et al., 2008; Torp et al., 2015), though most were limited by small samples (total $n = 19$–269; tic subsamples = 7–17), with one exception (Conelea et al., 2014), constraining statistical power and variability (Serdar, Cihan, Yücel, & Serdar, 2021). Tics may nonetheless reduce perceived ERP effectiveness by complicating differentiation between compulsions and involuntary tics (Eddy & Cavanna, 2014; Mansueto et al., 2005) and by contributing to greater OCD severity (Yan et al., 2022).

1.3. Latinos and OCD

To date, OCD research has largely been conducted with racially homogeneous samples, limiting the generalizability of findings to diverse populations (Crowley et al., 2024). Latino adults remain underrepresented in OCD research while also facing systemic barriers to

[2] Although the use of antipsychotic medications may be indicated for some individuals with OCD (Bloch et al., 2006; Conti et al., 2024; McDougle et al., 1990), the present study did not examine antipsychotic treatment patterns, as our analyses were specifically focused on SSRIs.

Table 1
Frequencies and percentages of study variables in the analytic sample ($n = 3224$).

Demographic characteristics	*n*	%
Assigned sex at birth		
Female	2146	66.6
Male	1073	33.3
Intersex	3	0.1
NA	2	0.1
Location		
United States	399	12.4
Argentina	142	4.4
Bolivia	403	12.5
Brazil	146	4.5
Chile	467	14.5
Colombia	394	12.2
Ecuador	28	0.9
El Salvador	37	1.1
Mexico	489	15.2
Paraguay	111	3.4
Peru	570	17.7
Puerto Rico	31	1.0
NA	7	0.2
Highest education level		
Did not finish elementary school	5	0.2
Elementary school	68	2.1
High school	433	13.4
Trade school	221	6.9
Some college	935	29
College	1164	36.1
Post-college education	369	11.4
NA	29	0.9
Monthly income[a]		
Much less	697	21.6
Somewhat less	587	18.2
About the same	951	29.5
Somewhat more	649	20.1
Much more	222	6.9
NA	118	3.7
Family history of OCD[b]		
Yes	1490	46.2
No	1587	49.2
NA	147	4.6

Note. OCD = obsessive–compulsive disorder; NA = not available (i.e., missing).
[a] Monthly income was assessed with the item, *"Compared to the average person in your country, how much do you earn? You can consider your earnings by year, paycheck, month, etc., however you are able to compare."* Response options ranged from 0 (*Much less*) to 4 (*Much more*).
[b] Family history of OCD was assessed with the yes/no question, *"Have any of your other family members been diagnosed or think they might have OCD?"*

mental health care and potentially differing in symptom presentation and SSRI/ERP treatment perceptions (Williams et al., 2017). These differences may reflect both biological and sociocultural mechanisms. For example, tics in OCD have been linked to distinct neurodevelopmental and genetic pathways, and variation in ancestry-related neurobiological markers may contribute to differences in symptom clustering and treatment response (Barnhill et al., 2017; Lin et al., 2022). Moreover, sociocultural beliefs about mental health may further influence how tics and obsessions are expressed or reported (Nicolini et al., 2017). Among some Latino individuals, mental health symptoms may be shaped in part by stigma, familismo, and spiritual frameworks for understanding distress (Grieb et al., 2023; Villatoro et al., 2014). These factors may influence whether intrusive thoughts, compulsions, or tic symptoms are disclosed or minimized (Morris et al., 2024; Wetterneck et al., 2012).

1.4. The present study

To date, investigations of OCD with tics have primarily focused on symptom differences without jointly examining suicide-related features, co-occurring mental health conditions, and perceptions of SSRI or ERP effectiveness. Addressing these limitations with our large and diverse sample enhances the cultural and clinical relevance of both the OCD and tics research in Latino populations. Importantly, the inclusion of adults provides a unique opportunity to examine long-term correlates, such as suicide-related outcomes, which may emerge or become more detectable over time.

To address these gaps, the present study tested whether OCD symptom presentation, lifetime history of suicidality, co-occurring mental health conditions, and the perceived effectiveness of SSRIs or ERP differ between Latino adults with OCD with and without a history of tics. Specifically, we hypothesize that adults with OCD and a history of tics will (1) endorse higher rates of aggressive, sexual, religious, hoarding, and symmetry-related obsessions, as well as "just-right" experiences and motoric compulsions; (2) report higher rates of lifetime suicidal ideation, planning, intent, and attempts; (3) exhibit higher rates of co-occurring mental health conditions; (4) perceive SSRIs as less effective for OCD symptoms; and (5) perceive ERP as less effective for OCD symptoms. Collectively, these hypotheses extend prior research by testing multiple clinical domains in a large, demographically diverse Latino sample. In doing so, the study addresses long-standing gaps in generalizability and clarifies how tic status relates to variations in OCD symptom content, suicide-related features, co-occurring psychiatric conditions, and the perceived effectiveness of SSRIs and ERP.

2. Methods

2.1. Recruitment and procedures

The present study used data from the Latin American Trans-ancestry INitiative for OCD genomics (LATINO; Crowley et al., 2024), an international, multi-site study. Participants were recruited through in-person outreach, online and social media advertisements (e.g., Facebook, Instagram), research databases (e.g., SPARK, ResearchMatch), and an online screening platform (www.latinostudy.org). Inclusion criteria included: (1) participant aged 9 years or older, (2) lifetime history of self-reported OCD symptoms, and (3) self-identified as having Latino[3] and/or Hispanic ancestry, defined as having at least one biological grandparent of Latin American descent. The present study sample included 3224 participants (M age = 31.35 years, $SD = 11.12$, range = 18–83). See Table 1 for additional demographics.

Study procedures were approved by the Institutional Review Board at each recruiting site, including ethics committees outside the U.S. Following written informed consent, participants completed a battery of self-report and clinician-administered assessments conducted by trained evaluators. All evaluators underwent expert-led training and were required to achieve over 80% reliability on the Yale-Brown Obsessive Compulsive Scale–Second Edition (Y-BOCS-II; Storch et al., 2010) before independently administering measures. Evaluators who were not independently licensed received weekly supervision from a trained clinician or lead local investigators. All Y-BOCS-II assessments were reviewed by a data quality committee. The LATINO protocol includes further details (Crowley et al., 2024).

Participants completed a battery of self-reported demographic factors and clinical measures related to mental health. Semi-structured diagnostic interviews were also administered, including the Diagnostic

[3] The authors acknowledge that Latino ancestry is diverse and reflects the integration of Indigenous, African, and European ancestry due to Spanish and Portuguese colonization in the Americas. As such, the term "Latino" may not be recognized by those from Spanish and Portuguese-speaking countries in Latin America; some may prefer other terms such as "Latinx, Latine, Hispanic, Chicano/a, or Tejano/a." To remain consistent with previous literature, the authors will use "Latino" to refer to an individual of Latin descent for the purposes of this work (Gearing et al., 2024; García, 2020; National Museum of the American Latino, 2024).

Interview for Anxiety, Mood, and OCD and Related Neuropsychiatric Disorders (DIAMOND; Tolin et al., 2018) and the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). Only the obsessive-compulsive-related disorder (OCRD) modules were administered from the DIAMOND (Tolin et al., 2018). All participants were administered the MINI (Sheehan et al., 1998), except those recruited in Brazil, who instead were administered the Portuguese version of the Structured Clinical Interview for DSM-5 Disorders, Clinician Version (SCID-5-CV; First et al., 2015). Participants who completed the MINI in English were administered version 7.0.0 for the DSM-5 (Sheehan et al., 2010), and those who completed it in Spanish were administered version 5.0.0 for the DSM-4 (Sheehan et al., 1998). Additional procedural information is detailed in the LATINO study protocol (Crowley et al., 2024).

2.2. Measures

OCD Symptoms and Status. The Y-BOCS-II (Storch et al., 2010, 2025) assessed OCD symptom content and severity. This clinician-administered measure includes 67 yes/no symptom items and a 10-item severity scale rated from 0 (*no symptoms*) to 5 (*extreme*), yielding total scores from 0 to 50, with higher scores indicating greater severity. The Y-BOCS-II demonstrates strong psychometric properties in English and Spanish (Storch et al., 2010, 2025). In the present sample, the mean current severity score was 20.54 ($SD = 8.24$) and the mean worst-ever score was 33.88 ($SD = 8.22$). A binary variable was created to indicate a current, interview-confirmed OCD diagnosis based on the DIAMOND, MINI, or SCID (First et al., 2015; Sheehan et al., 1998; Tolin et al., 2018); 2462 participants (76.4%) met criteria, and 762 (23.6%) did not.

Tic status. We categorized participants into tic and non-tic groups based on the presence or absence of a lifetime tic-related disorder (i.e., TS, persistent [chronic] motor or vocal tic disorder, or provisional tic disorder). Tic status was determined using either self-reported diagnostic history from questionnaires or structured diagnostic interviews. We used the DIAMOND (Tolin et al., 2018) for all participants except those in the Brazil subsample, for whom diagnoses were established using the SCID-5-CV (First et al., 2015). We categorized 456 participants (14.1%) in the tic group, and 2768 participants (85.9%) in the non-tic group.

Suicide-related features. We assessed suicide-related features using items from either the MINI (Sheehan et al., 1998) or the Columbia Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011). Participants who enrolled earlier completed the suicidality module of the MINI, whereas those who enrolled later completed the C-SSRS instead, due to a mid-study transition in assessment procedures. These instruments have been widely used for assessing suicide risk (Campos et al., 2023).

Current co-occurring mental disorders. Based on responses from the MINI (Sheehan et al., 1998), DIAMOND (Tolin et al., 2018), or SCID-5-CV (First et al., 2015), we created a series of binary variables indicating the presence or absence of any current, interview-confirmed diagnosis of a depressive disorder, a bipolar disorder, an OCRD other than OCD, a trauma-related disorder, a schizophrenia spectrum disorder, an eating disorder, and a substance use disorder. These clinician-administered interviews have demonstrated good psychometric properties in diagnosing different mental health conditions (First et al., 2015; Sheehan et al., 2010; Tolin et al., 2018)

Perceived SSRI Effectiveness. Participants were asked if they had been prescribed and had taken any of the following SSRIs at any point in their life for OCD: citalopram, escitalopram, fluvoxamine, paroxetine, fluoxetine, and sertraline. Those who responded yes to any of the SSRIs were asked to rate how much they perceived their OCD symptoms to have improved from this medication on a 5-point Likert scale with the following scaling: 1 (*Much worse*), 2 (*Somewhat worse*), 3 (*No change*), 4 (*Somewhat improved*), and 5 (*Much improved*).

Perceived ERP Effectiveness. Participants who endorsed trialing ERP for OCD were asked to rate how much their OCD symptoms had changed as a result of ERP treatment on a 7-point Likert scale with the following scaling: 1 (*Very much improved*), 2 *(Much improved*), 3 (*Minimally improved*), 4 (*No change*), 5 (*Minimally worse*), 6 (*Much worse*), and 7 (*Very much worse*).

Demographics. Family history of OCD, monthly income, assigned sex at birth, site country, and education history were assessed via self-report questionnaires (Table 1).

2.3. Data analysis plan

We conducted all analyses in R version 4.3.2 (R Core Team, 2023). We applied two filtering steps to the original dataset prior to analysis. First, we excluded 70 participants who had both a current and worst-ever Y-BOCS-II total score of 14 or lower, consistent with prior research identifying this cutoff as indicative of OCD symptom remission (Pinciotti et al., 2025). This filtering ensured that the sample included only participants with a history of clinically significant OCD symptoms. Moreover, rather than filtering only for participants who met diagnostic criteria for OCD based on interview data, this filtering step reflected a dimensional approach consistent with the Research Domain Criteria framework (Cuthbert, 2014), which emphasizes clinically relevant symptom dimensions rather than reliance solely on categorical diagnostic thresholds. Second, 1167 participants were excluded because they had missing values across all tic-related items, which prevented determination of tic group membership.

In our analytic sample ($n = 3224$), missing data were minimal (Table 1). Current Y-BOCS-II total scores were missing for 94 participants (2.9%), and worst-ever scores for 113 (3.5%). Suicide-related items from the MINI (Sheehan et al., 1998) and C-SSRS (Posner et al., 2011) showed higher missingness, ranging from 1307 cases (40.5%) to 2956 cases (91.7%). This reflected (a) a mid-study protocol change in which the C-SSRS replaced the MINI and (b) downstream skip patterns, whereby participants who denied earlier suicide items were not administered subsequent suicide items. Given these factors, we used complete case analysis rather than multiple imputation, as missingness was minimal for most variables and imputation was inappropriate for suicide-related items. Furthermore, to preserve measure-specific content and maximize interpretability, we examined suicidality indicators for lifetime and current ideation, intent, plan, and attempts from the MINI and C-SSRS independently (Table 3) rather than merging items across instruments.

A series of analyses were conducted comparing tic and non-tic groups across OCD symptom domains, suicide-related features, co-occurring mental health conditions, and perceived SSRI effectiveness. We conceptualized each analysis as an individual hypothesis test addressing a distinct, theory-driven question (Rubin, 2021). Because no omnibus inference (e.g., “at least one difference”) was planned, we deemed α adjustments unnecessary (Rubin, 2021). Accordingly, we reported unadjusted *p*-values alongside effect sizes (Cramér’s V) to evaluate clinical relevance. Cramér’s V values of approximately 0.10, 0.30, and 0.50 were interpreted as small, medium, and large effects, respectively (Kim, 2017).

3. Results

For our first hypothesis, we examined whether lifetime OCD symptom presentation differed between tic and non-tic groups. We conducted Chi-square tests of independence for each of the 67 Y-BOCS-II symptom content items (Table 2). The symptom content items were dichotomized to reflect lifetime endorsement (1 = *endorsed currently or previously*; 0 = *not endorsed*). Significant group differences emerged across 14 Y-BOCS-II items. Ten items were more frequently endorsed in the tic group, primarily reflecting symmetry/exactness and "just-right" phenomena (e.g., intrusive meaningless sounds/words/music, repeating routines, evening-up behaviors, counting, repeating what someone else

Table 2
Chi-square tests of lifetime OCD symptom endorsement by tic status ($n = 3224$).

Y-BOCS-II Items	Tic ($n = 456$)		Non-Tic ($n = 2768$)		χ^2	Cramér's V
	n	%	n	%		
Concern with germs	248	54.4	1566	56.6	0.68	0.02
Concern with contaminants or chemicals	135	29.6	882	31.9	0.82	0.02
Fear of spreading germs/ contaminants	167	36.6	1216	43.9	8.24 **	0.05
Concern with bodily waste/fluids	247	54.2	1471	53.1	0.13	0.01
Concern with sticky substances/residues	213	46.7	1326	47.9	0.18	0.01
Concern with becoming/making someone pregnant	125	27.4	858	31.0	2.21	0.03
Concern with having an illness/disease	273	59.9	1689	61.0	0.17	0.01
Fear of eating certain foods	168	36.8	1038	37.5	0.05	0.01
Fear of carelessly harming self/others	248	54.4	1513	54.7	0.003	<0.01
Fear of impulsively harming self/others	252	55.3	1517	54.8	0.02	<0.01
Fear of being responsible for bad events	238	52.2	1456	52.6	0.01	<0.01
Fear of blurting out obscenities or insults	130	28.5	748	27.0	0.36	0.01
Fear of doing something embarrassing/ inappropriate	195	42.8	1133	40.9	0.47	0.01
Violent, horrific, or repulsive images	257	56.4	1590	57.4	0.15	0.01
Concern with scrupulosity	288	63.2	1901	68.7	5.22 *	0.04
Concern with sacrilege/ blasphemy	163	35.7	979	35.4	0.01	<0.01
Fear of Satan/demonic possession	122	26.8	785	28.4	0.42	0.01
Forbidden or improper sexual thoughts/ images	206	45.2	1191	43.0	0.65	0.02
Unwanted sexual impulses	118	25.9	719	26.0	<0.01	<0.01
Concerns about sexual orientation/gender identity	128	28.1	727	26.3	0.57	0.01
Need for symmetry or exactness	294	64.5	1796	64.9	0.01	<0.01
Perfection in appearance/ grooming	221	48.5	1310	47.3	0.16	0.01
Fear of saying the wrong thing	262	57.5	1562	56.4	0.13	0.01
Bothered by things not sounding "just right"	222	48.7	1319	47.7	0.13	0.01
Need for knowing/ remembering	222	48.7	1192	43.1	4.80 *	0.04
Need for hoarding/ saving things	190	41.7	1119	40.4	0.20	0.01
Fear of losing objects/ information/a person	237	52.0	1390	50.2	0.42	0.01
Magical/superstitious fears	199	43.6	1168	42.2	0.28	0.01
Intrusive meaningless sounds/words/ music	221	48.5	1090	39.4	13.02 ***	0.06
Excessive/ritualized hygiene	265	58.1	1637	59.1	0.13	0.01
Cleaning of household items, objects, or pets	186	40.8	1264	45.7	3.57	0.03
Checking locks, appliances, brakes, etc.	313	68.6	1902	68.7	<0.01	<0.01
Checking that nothing terrible did/will happen	233	51.1	1455	52.6	0.28	0.01
Checking that did not make mistake	335	73.5	2009	72.6	0.11	0.01
Checking related to somatic obsessions	168	36.8	1010	36.5	0.01	<0.01
Need for repeating routine activities or boundary crossings	247	54.2	1146	41.4	25.48 ***	0.09
Evening up behaviors	239	52.4	1179	42.6	14.92 ***	0.07
Re-reading/re-writing	296	64.9	1848	66.8	0.52	0.01
Counting	235	51.5	1167	42.2	13.62 ***	0.07
Ritualized activity of daily living routines	263	57.7	1467	53.0	3.26	0.03
Excessive religious rituals	116	25.4	726	26.2	0.09	0.01
Ordering or arranging compulsions	276	60.5	1616	58.4	0.66	0.02
Repeating what someone else has said	128	28.1	535	19.3	17.79 ***	0.08
Asking for reassurance	273	59.9	1731	62.5	1.07	0.02
Ritualized eating behaviors	156	34.2	776	28.0	6.97 **	0.05
Saving/collecting useless items	177	38.8	999	36.1	1.14	0.02
Picking up objects that most people would pass by	101	22.1	547	19.8	1.24	0.02
Examining things that had left one's possession	137	30.0	718	25.9	3.18	0.03
Buying many unneeded items	105	23.0	659	23.8	0.09	0.01
Need for telling, asking, or confessing	221	48.5	1315	47.5	0.11	0.01
Need for doing something until "just right"	316	69.3	1861	67.2	0.67	0.02
Need for touching, tapping, or rubbing	214	46.9	1066	38.5	11.24 ***	0.06
Staring/blinking rituals	138	30.3	569	20.6	20.98 ***	0.08
Superstitious behaviors	199	43.6	1088	39.3	2.89	0.03
Mental rituals (other than checking or counting)	257	56.4	1387	50.1	5.87 *	0.04
Pervasive slowness	192	42.1	1153	41.7	0.02	<0.01
Ritualized avoidance	189	41.4	1033	37.3	2.66	0.03
Avoiding contaminants or feared objects	204	44.7	1153	41.7	1.40	0.02
Avoiding activities, places, or people due to obsessions	288	63.2	1903	68.8	5.37 *	0.04
Avoiding contaminated objects/people	241	52.9	1508	54.5	0.36	0.01
Avoiding sharp/ dangerous objects or vehicles/machinery	150	32.9	996	36.0	1.50	0.02
Avoiding individuals/ animals due to impulses	130	28.5	828	29.9	0.31	0.01

(*continued on next page*)

Table 2 (*continued*)

Y-BOCS-II Items	Tic ($n = 456$)		Non-Tic ($n = 2768$)		χ^2	Cramér's V
	n	%	n	%		
Avoiding talking/ writing for fear of saying/writing wrong	165	36.2	1051	38.0	0.46	0.01
Avoiding tv/radio/ media to shield from disturbing information	190	41.7	1358	49.1	8.28 **	0.05
Avoiding shopping out of concern of excessive buying	102	22.4	606	21.9	0.03	<0.01
Avoiding activities, places, or people that trigger rituals	214	46.9	1262	45.6	0.23	0.01
Avoiding reading/ writing because it may bring on rituals	137	30.0	722	26.1	2.94	0.03

Note. χ^2 = Chi-square statistic. *p*-values are two-tailed. Percentages reflect the proportion of participants endorsing the item within each group. $df = 1$ for all comparisons. Y-BOCS-II = Yale-Brown Obsessive Compulsive Scale – Second Edition. OCD = obsessive compulsive disorder. *$p < .05$; **$p < .01$; ***$p < .001$.

has said, touching/tapping/rubbing, and staring/blinking rituals), along with ritualized eating behaviors, mental rituals, and need for knowing/ remembering. In contrast, four items were more frequently endorsed in the non-tic group, which largely reflected contamination/scrupulosity and avoidance themes (e.g., scrupulosity, fear of spreading germs/contaminants, avoiding activities/places/people due to obsessions, and avoiding media exposure). All effect sizes were small.

For our second hypothesis, we examined whether suicide-related features differed between tic and non-tic groups (Table 3). Out of these 26 suicide-related items, 10 were statistically significant and these 10 were more prevalent in the tic group. All effect sizes were small.

For our third hypothesis, Chi-square analyses examined differences in current co-occurring mental health conditions between tic and non-tic groups (Table 4). Participants with tics were significantly more likely to have a co-occurring depressive disorder, an OCRD (excluding OCD), and an eating/feeding disorder compared to those without tics. No significant differences were observed for bipolar, trauma-related, psychotic, substance use, or OCD diagnoses. All effect sizes were small.

For our fourth hypothesis, we tested perceived differences in SSRI effectiveness between tic and non-tic groups. We first filtered the analytic dataset to participants who reported using at least one SSRI specifically for OCD ($n = 774$). We then examined SSRI response score distributions across tic groups, including an averaged response score that reflected the mean of all available SSRI ratings for participants who had used more than one medication. We observed notable skew across most variables (Table 5), and histogram inspection (not shown) further indicated violations of normality.

Consequently, we used Wilcoxon rank-sum tests as a nonparametric test to compare perceived SSRI response ratings between tic and non-tic groups (Okoye & Hosseini, 2024). Across all comparisons, response ratings did not significantly differ between groups (Table 6).

For our fifth hypothesis, we tested perceived ERP effectiveness between tic and non-tic groups. We first filtered the analytic dataset to participants who reported trialing ERP for OCD ($n = 1144$). A total ERP effectiveness score was created by summing Likert ratings: mean = 2.31, $SD = 1.12$ for the non-tic group; mean = 2.65, $SD = 1.23$ for the tic group. Given nonnormal distributions (non-tic group: skew = 0.53, kurtosis = −0.19; tic group: skew = 0.27, kurtosis = −0.15) and as observed in histograms (not shown), we conducted a Wilcoxon rank-sum test to examine whether this total score differed based on tic status (Okoye & Hosseini, 2024). The test revealed a significant group difference ($W = 55{,}569$, $p = .002$) with a small effect size ($r = 0.09$; Kerby, 2014), such that individuals without tics reported greater perceived ERP benefit. Moreover, Chi-square tests on ERP response categories

Table 3
Chi-square tests of group differences in suicide-related features by tic status.

Suicide related items	Total *n*	Tic		No tic		χ^2	Cramér's V
		Yes *n* (%)	No *n*	Yes *n* (%)	No *n*		
MINI							
Thought life worthless (LT)	1205	108 (77.7)	31	751 (70.5)	315	3.16	0.05
Thought life worthless (C)	859	35 (32.4)	73	159 (21.2)	592	6.82 **	0.09
Wished dead (LT)	1205	98 (70.5)	41	684 (64.2)	382	2.17	0.04
Wished dead (C)	782	25 (25.5)	73	101 (14.8)	583	7.32 **	0.10
Thought of killing self (LT)	1204	86 (61.9)	53	574 (53.9)	491	3.16	0.05
Thought of killing self (C)	659	16 (18.6)	70	68 (11.9)	505	3.05	0.07
Planned to kill self (LT)	1205	60 (43.2)	79	371 (34.8)	695	3.74	0.06
Planned to kill self (C)	432	10 (16.7)	50	31 (8.3)	341	4.18 *	0.10
Attempted suicide (LT)	1204	33 (23.7)	106	235 (22.1)	830	0.2	0.01
Had suicidal thoughts (LT)	1205	101 (72.7)	38	624 (58.5)	442	10.24 **	0.09
Had suicidal thoughts (C)	724	24 (24.0)	76	96 (15.4)	528	4.63 *	0.08
Family history of suicide	1205	21 (15.1)	118	158 (14.8)	908	0.01	<0.01
Family history of suicide attempts	1204	45 (32.4)	94	313 (29.4)	752	0.52	0.02
C-SSRS							
Wished dead (LT)	1918	150 (81.5)	34	1271 (73.3)	463	5.86 **	0.06
Wished dead (PM)	1424	64 (42.7)	86	449 (35.2)	825	3.21	0.05
Thought of killing self (LT)	1918	130 (70.7)	54	976 (56.3)	758	14.06 ***	0.09
Thought of killing self (PM)	1106	30 (23.1)	100	204 (20.9)	772	0.33	0.02
Thought of means (LT)	1107	103 (79.2)	27	760 (77.8)	217	0.14	0.01
Thought of means (PM)	865	23 (22.3)	80	142 (18.6)	620	0.8	0.03
Had intentions (LT)	1106	83 (63.8)	47	598 (61.3)	378	0.32	0.02
Had intentions (PM)	682	11 (13.3)	72	79 (13.2)	520	0	<0.01
Worked out details (LT)	1106	68 (52.7)	61	436 (44.6)	541	3	0.05
Worked out details (PM)	504	8 (11.8)	60	44 (10.1)	392	0.18	0.02
Started the act (LT)	1915	61 (33.2)	123	411 (23.7)	1320	7.93 **	0.06
Family history of suicidality	1916	71 (38.6)	113	515 (29.7)	1217	6.14 *	0.06
Attempted suicide (LT)	1917	57 (31.0)	127	394 (22.7)	1339	6.28 *	0.06

Note. $df = 1$ for all comparisons. MINI = Mini International Neuropsychiatric Interview. C-SSRS = Columbia Suicide Severity Rating Scale. LT = lifetime. C = current. PM = past month. *$p < .05$; **$p < .01$; ***$p < .001$.

Table 4
Chi-square tests of current Co-occurring diagnoses by tic status ($N = 3224$).

Co-occurring diagnoses	Tic ($n = 456$)		No Tic ($n = 2768$)		χ^2	Cramér's V
	Yes *n* (%)	No *n* (%)	Yes *n* (%)	No *n* (%)		
OCD diagnosis	358 (78.5)	98 (21.5)	2104 (76.0)	664 (24.0)	1.35	0.02
Any depressive disorders	139 (30.5)	317 (69.5)	688 (24.9)	2080 (75.1)	6.50 **	0.05
Any bipolar disorders	22 (4.8)	434 (95.2)	86 (3.1)	2682 (96.9)	3.57	0.03
Any OCRD (except OCD)	127 (27.9)	329 (72.1)	417 (15.1)	2351 (84.9)	45.63 ***	0.12
Any trauma-related disorders	68 (14.9)	388 (85.1)	348 (12.6)	2420 (87.4)	1.91	0.02
Any schizophrenia spectrum disorders	12 (2.6)	444 (97.4)	56 (2.0)	2712 (98.0)	0.70	0.02
Any eating disorders	85 (18.6)	371 (81.4)	343 (12.4)	2425 (87.6)	13.28 ***	0.06
Any substance related disorders	35 (7.7)	421 (92.3)	185 (6.7)	2583 (93.3)	0.61	0.01

Note. χ^2 = Chi-square statistic. *p*-values are two-tailed. Percentages reflect the proportion of participants in each group endorsing the diagnosis. $df = 1$ for all comparisons. OCRD = obsessive-compulsive-related disorder. $^{**}p < .01$; $^{***}p < .001$.

Table 5
Descriptive statistics for participants who endorsed using an SSRI for OCD.

SSRI response	*n*	Mean	Median	*SD*	Min	Max	Skew	Kurtosis
Citalopram response	22	4.32	4	0.57	3	5	−0.04	−0.87
Escitalopram response	96	4.42	5	0.71	2	5	−0.95	0.24
Fluoxetine response	181	4.08	4	0.94	1	5	−0.96	0.61
Fluvoxamine response	148	4.20	4	0.89	1	5	−1.26	1.92
Paroxetine response	65	4.42	5	0.81	1	5	−1.57	3.10
Sertraline response	301	4.39	5	0.80	1	5	−1.36	1.80
SSRI response average	774	4.30	4	0.83	1	5	−1.25	1.75

Table 6
Wilcoxon rank-sum test results for perceived SSRI response ratings by tic group.

Perceived SSRI Response	*n* (%)			Median		*W*	*p*
	Total	No tic	Tic	No tic	Tic		
Citalopram response	22	21 (95.5)	1 (4.5)	4	5	3.5	0.236
Escitalopram response	96	80 (83.3)	16 (16.7)	5	5	604	0.697
Fluoxetine response	181	150 (82.9)	31 (17.1)	4	4	2563	0.341
Fluvoxamine response	148	121 (81.8)	27 (18.2)	4	5	1454.5	0.338
Paroxetine response	65	55 (84.6)	10 (15.4)	5	4	346.5	0.145
Sertraline response	301	251 (83.4)	50 (16.6)	5	4	6790.5	0.305
Averaged SSRI response	774	652 (84.2)	122 (15.8)	4	4	40,131	0.863

Note. SSRI = selective serotonin reuptake inhibitor.

Table 7
Chi-square tests of perceived ERP effectiveness ($n = 1144$).

Perceived ERP Effectiveness	Tic ($n = 130$)		No Tic ($n = 1014$)		χ^2	Cramér's V
	Yes *n* (%)	No *n* (%)	Yes *n* (%)	No *n* (%)		
Any improvement (1 – 3)	93 (71.5)	37 (28.5)	840 (82.8)	174 (17.2)	9.78**	0.09
Very much improved (1)	31 (23.8)	99 (76.2)	296 (29.2)	718 (70.8)	1.61	0.04
Much improved (2)	26 (20.0)	104 (80.0)	301 (29.7)	713 (70.3)	5.29*	0.07
Minimally improved (3)	36 (27.7)	94 (72.3)	243 (23.9)	771 (76.0)	0.87	0.03
No change (4)	35 (26.9)	95 (73.1)	158 (15.6)	856 (84.4)	10.6***	0.10
Minimally worse (5)	0 (0)	130 (100)	12 (1.2)	1002 (98.8)	1.55	0.04
Much worse (6)	1 (<0.0)	129 (99.2)	1 (<0.0)	1013 (99.9)	2.97	0.05
Very much worse (7)	1 (<0.0)	129 (99.2)	3 (<0.0)	1011 (99.7)	0.74	0.03

Note. χ^2 = Chi-square statistic, ERP = exposure and response prevention. Percentages reflect the proportion of participants within each tic-status group endorsing each ERP effectiveness response. df = 1 for all comparisons. *p*-values are two-tailed. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

(collapsing responses 1–3 as "any improvement") showed that participants with tics were more likely to report "no change," while those without tics more often reported "any improvement" (Table 7). Effect sizes were small.

4. Discussion

This study examined whether Latino adults with a history of clinically significant OCD symptoms differ in OCD symptom content, lifetime suicidal ideation, planning, and attempts, co-occurring mental health conditions, and the perceived effectiveness of SSRIs and ERP based on the presence or absence of lifetime tics. Our first hypothesis, which tested differences in OCD symptom presentation, was partially supported (Table 2). Individuals with a history of tics endorsed the following ten OCD content items more frequently than the non-tic group: need for know/remember, intrusive meaningless sounds or music, repeating routines or boundary crossings, evening-up behaviors, counting, repeating what others had said, ritualized eating, touching/tapping/rubbing, staring/blinking rituals, and mental rituals other than checking or counting. Most of these themes reflect "just-right"

phenomena and align our hypothesis that the tic group would show heightened rates of these types of OCD symptoms (De Alvarenga et al., 2012; Katz et al., 2022).

However, contrary to this hypothesis, aggression, sexual, and hoarding-related obsessions/compulsions did not differ significantly between groups, and checking behaviors were equally common across both groups. Also contrary to this hypothesis, obsessions related to contamination (specifically, fear of spreading germs or contaminants) and religion (scrupulosity) were more common in the non-tic group. These findings do not align with past research suggesting elevated rates of these themes in tic groups (De Alvarenga et al., 2012; Katz et al., 2022) and instead highlight the heterogeneity of clinical profiles in those with OCD who have (or do not have) tics.

Notably, there was also a higher prevalence of avoidance-related items in the non-tic group. Although we did not establish *a priori* hypotheses for difference in the YBOCS-II avoidance items, one possible explanation is that contamination and scrupulosity (both more common in the non-tic group in our sample) can involve a core feared consequence (e.g., illness or a moral violation) that naturally lends avoidance (McGuire et al., 2012). In contrast, symmetry- and "just-right"–related phenomena (which were more common in the tic group in our sample) can reflect an internal sense of incompleteness rather than a specific feared outcome (Katz et al., 2022). As such, avoidance compulsions may be less central to tic-related OCD, where the urge to perform compulsions may be more likely driven by "just-right" experiences rather than feared outcomes. Although effect sizes were small, the significant content differences highlight the importance of tailoring ERP to the symptom content most salient for each patient, some of which may be slightly more characteristic of individuals with tic histories.

Our second hypothesis, examining differences in lifetime suicidal ideation, intent, planning, and attempts by tic status, was partially supported. Although not all suicide-related indicators reached significance, among the ten that did, rates were consistently higher in the tic group (Table 3). Compared to the non-tic group, participants with tics were more likely to report feeling life was worthless, wishing they were dead, having a suicide plan, a history of suicidal thoughts or behaviors, a family history of suicide, and past attempts. Despite small effect sizes, these findings may be clinically meaningful, as even small effects can have significant implications for high-risk outcomes such as suicidality (Funder & Ozer, 2019; Kraemer & Kupfer, 2006). Notably, Benatti and colleagues (2021) reported similar suicidal ideation but higher suicide attempt rates among individuals with OCD and tics. The present results extend this work, suggesting elevated risk across both suicidal ideation and attempts.

However, these findings should be interpreted cautiously because suicide-related data were missing for some participants due to both a mid-study transition from the MINI to the C-SSRS and skip patterns in which later suicide-related items were only administered when earlier screening items were endorsed. Because some missingness was structural by design, complete case analyses were used rather than multiple imputation, though this approach could have inflated or attenuated group differences if participants with observed data differed systematically from those without observed data. Thus, the suicidality findings warrant replication using a uniform suicide-risk measure across all participants.

Our third hypothesis, which tested differences in current interview-confirmed mental disorders by tic status, was partially supported (Hirschtritt et al., 2015). Although not all diagnostic categories differed by tic status, those that did were more prevalent among individuals with tics (Table 4). Specifically, participants with tics were more likely to meet interview-confirmed current diagnoses of any depressive disorder, any OCRD (excluding OCD itself, which did not differ between groups), and any eating disorder, aligning with transdiagnostic work implying that shared mechanisms across OCD and co-occurring conditions may contribute to broader clinical severity (e.g., Storch et al., 2018). Although effect sizes were small, these differences were consistent in direction, suggesting that the tic group bears a greater overall burden of co-occurring mental health conditions beyond OCD. This pattern highlights the clinical complexity of OCD co-occurring with tics and underscores the importance of comprehensive diagnostic assessment and integrative treatment planning to address co-occurring conditions in this population.

Contrary to our fourth hypothesis, which examined perceived differences in SSRI effectiveness for OCD symptoms (Jalenques et al., 2024; Kloft et al., 2018), we observed no differences by tic status (Table 6). Both groups reported similar levels of perceived benefit from SSRIs, and this pattern held across individual medication types as well as when examining the total averaged response. These findings imply that, at least from the perspective of self-reported treatment response, those with OCD and co-occurring tics do not appear to diminish the perceived effectiveness of SSRIs for OCD symptoms.

Consistent with our fifth hypothesis, individuals with OCD and tics perceived ERP as less effective than those without tics, although the effect size was small and should not be interpreted as indicating substantially diminished ERP benefit. This finding diverges from prior small-scale, youth-focused studies reporting no significant CBT/ERP outcome differences by tic status (Conelea et al., 2014; Himle et al., 2003; March et al., 2007; Piacentini et al., 2002; Skarphedinsson et al., 2015; Storch et al., 2008; Torp et al., 2015), extending this work by demonstrating a small but detectable effect in a large adult sample. Two non-mutually exclusive explanations may account for this finding. First, lower perceived ERP effectiveness may reflect greater overall clinical severity or complexity among individuals with tics. Second, tic-related OCD may introduce treatment-specific challenges when compulsions, premonitory urges, and tic-like behaviors overlap, making ERP targets more difficult to distinguish during case conceptualization and treatment planning. Thus, these findings underscore the potential value of refining ERP to address tic-related concerns while reaffirming ERP as a first-line psychotherapy for OCD and tic-related disorders (Yan et al., 2022).

4.1. Limitations and future directions

Several limitations should be acknowledged. First, this study did not include a dimensional measure of OCD symptom severity (e.g., the DY-BOCS or the DOCS; Abramowitz et al., 2010; Rosario-Campos et al., 2006), which could have provided greater nuance regarding the prominence of specific symptom themes within tic and non-tic groups. Nonetheless, the Y-BOCS-II offered a comprehensive assessment of symptom domains, allowing for broad yet meaningful comparisons consistent with the study's aims (Storch et al., 2010, 2025). Future research incorporating dimensional measures such as the DY-BOCS could elucidate how individual OCD symptom dimensions present across tic and non-tic presentations, thereby informing more tailored assessment and treatment planning.

Second, the cross-sectional design precludes conclusions about temporal or causal relationships between tic status and OCD symptom profiles (Rindfleisch et al., 2008). Longitudinal designs are needed to capture symptom trajectories over time. Ecological momentary assessment (EMA) methods may be particularly valuable, as they can capture real-time fluctuations in obsessions, compulsions, and co-occurring mental health features in naturalistic settings, thereby reducing retrospective bias and improving ecological validity (Shiffman et al., 2008). Future longitudinal research would also benefit from oversampling individuals with both OCD and tics to enable more detailed examination of subgroup differences by tic status over time, extending the present cross-sectional work in which only 14.1% of the analytic sample had a history of tics.

Third, perceived SSRI and ERP effectiveness were both based on retrospective self-report, without corroborating clinician-verified data on treatment fidelity, dosage, duration, or adherence (Ojalheto et al., 2020; Xu et al., 2021). The absence of these data limits the precision of

conclusions regarding actual treatment response for ERP and SSRIs across tic and non-tic OCD presentations. Future studies should incorporate clinician-verified treatment information (e.g., dose, duration, adherence) for ERP and SSRIs (Ojalheto et al., 2020; Xu et al., 2021) to more accurately distinguish perceived from objectively observed outcomes.

A fourth limitation concerns heterogeneity in diagnostic assessment across subsamples and sites. Suicide-related features were assessed using either the MINI (Sheehan et al., 1998) or C-SSRS (Posner et al., 2011), reflecting a mid-study procedural transition. Moreover, all participants were administered the MINI except those recruited in Brazil, who received the Portuguese SCID-5-CV (First et al., 2015). Tic status was also determined using available diagnostic information across subsamples, including self-reported diagnostic history and structured clinical interviews. Although this approach for assessing tics supported harmonization across a large multi-site dataset, it may have introduced measurement heterogeneity, particularly because self-reported and interview-confirmed tic diagnoses can differ in sensitivity and specificity (van Stralen et al., 2009). This may have contributed to misclassification, altered group composition, and attenuated or otherwise biased between-group differences. Future studies using uniform diagnostic procedures and standardized tic assessments are needed to replicate these findings and clarify the robustness of tic-related differences in OCD presentation, comorbidity, suicidality, and treatment perceptions.

Fifth, because the study included only Latino adults and did not include a non-Latino White comparator group, we cannot determine whether observed symptom presentation patterns are specific to Latino adults with OCD or reflect broader patterns among adults with OCD and co-occurring tics. Thus, the present findings are best interpreted as characterizing clinical heterogeneity within a Latino sample rather than establishing Latino-specific differences in OCD presentation. Future work including appropriate comparison groups is needed to clarify whether these tic-related patterns differ across racial and ethnic groups.

5. Conclusion

We found that among Latino adults with a history of clinically significant OCD symptoms, those with co-occurring tics exhibited greater endorsement of "just-right" OCD content, a higher prevalence of suicide-related features, higher rates of co-occurring mental health conditions, and less perceived benefit from ERP with no significant differences observed in perceived SSRI effectiveness. While effect sizes were small (Kim, 2017), the statistically significant findings can have clinically relevant implications when extrapolated to the larger population (Funder & Ozer, 2019; Kraemer & Kupfer, 2006). Although our results do not suggest that drastic treatment changes are warranted, targeted refinements to address these areas that varied in the tic group may yield meaningful improvements for those with OCD and tics. More broadly, these findings contribute to the limited literature on OCD among Latino adults by documenting clinically relevant heterogeneity in symptom presentation, comorbidity, suicidality, and perceived treatment response within this underrepresented population. Given known barriers to mental health care and potential cultural influences on symptom interpretation and treatment engagement among Latino individuals (Grieb et al., 2023; Morris et al., 2024; Villatoro et al., 2014; Wetterneck et al., 2012) this work addresses an important gap in understanding how tic-related OCD presents in Latino adults.

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Data availability

Please contact the last author for inquiries about data access. Reasonable requests will be considered.

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