



Symptom profiles in pediatric obsessive-compulsive disorder (OCD): The effects of comorbid grooming conditions

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ABSTRACT

This study sought to examine possible differences in phenomenological features and/or symptom severity of children diagnosed with obsessive-compulsive disorder (OCD) and a comorbid grooming condition (i.e., skin picking and trichotillomania). A total of 202 children receiving a primary diagnosis of OCD were classified into two distinct groups: (1) OCD alone ($n = 154$) and (2) OCD plus a comorbid grooming condition (OCD + grooming; $n = 48$). Analyses revealed that those children presenting with a comorbid grooming condition demonstrated different symptom profiles than those with OCD alone. In addition, parents of these children were more likely to report the presence of tactile/sensory sensitivity than those in the OCD alone group. However, no differences were found with respect to symptom severity via self-report (e.g., OCI) or semi-structured interview (e.g., CY-BOCS). Possible clinical and treatment implications, future areas of research, and limitations to the present study are discussed.

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Children with obsessive-compulsive disorder (OCD) report intrusive thoughts, impulses, or images resulting in significant distress or anxiety (e.g., obsessions). In an attempt to neutralize these thoughts and reduce their anxiety, these children engage in any one of a myriad of circumscribed behaviors (e.g., compulsions; American Psychiatric Association, 2001). Research suggests that OCD runs a chronic and impairing course and affects between 1.5 and 2.2 million children in the United States (2–3% prevalence rate; Vallenia-Basille, Garrison, Waller, & Addy, 1996; Zohar, 1999) with a majority of these children also meeting diagnostic criteria for an additional psychiatric disorder (e.g., 75–84%; Geller, Biederman, Griffin, & Jones, 1996).

The term obsessive-compulsive spectrum disorder (OCS) has been used by some to refer to a class of disorders sharing similarities with OCD (Goldsmith, Shapira, Phillips, & McElroy, 1998; Hollander, Friedberg, Wasserman, Yeh, & Iyengar, 2005). Trichotillomania (TTM) and skin picking (SP) are two examples of disorders commonly placed on this spectrum. The repetitive behaviors associated with OCD (i.e., compulsions), TTM (i.e., hair pulling), and SP have provided face valid support for this classification scheme with increasing emphasis placed on growing

empirical evidence suggesting phenomenological overlap between OCD and other OCSs including symptom profiles, comorbidity, and family history (Bellodi et al., 2001; Bienvenu et al., 2000; Hollander et al., 2005). However, use of the term OCS has not been without controversy.

Some researchers believe that the term OCS is unnecessary and that inclusion of such disorders as TTM and SP under this rubric is inappropriate. Detractors of this classification scheme argue that OCD is properly classified as an anxiety disorder in the Diagnostic and Statistical Manual (DSM; Abramowitz & Deacon, 2005). Consequently, OCD should be distinguished from disorders demonstrating only topographical similarities (i.e., repetitive behaviors). For example, Abramowitz and Deacon note that hair pulling associated with TTM does not occur in response to obsessive thoughts or anxiety as is characteristic of the compulsions associated with OCD. This debate persists and highlights the importance of a small but growing line of research examining the possible phenomenological overlap between OCD and TTM.

Although few studies have directly examined the relationship between OCD and TTM, research suggests that a significant percentage of adults with TTM also meet diagnostic criteria for OCD (e.g., 13–19%; Christenson, Mackenzie, & Mitchell, 1991; Cohen et al., 1995; Stewart, Jenike, & Keuthen, 2005). However, the rates of TTM in those diagnosed with OCD vary to some extent (1.4–9%; Grant, Mancebo, Pinto, Eisen, & Rasmussen, 2006; Samuels et al., 2002). Samuels and colleagues found that 9% ($n = 3$) of adult OCD patients with hoarding symptoms ($n = 36$) versus 1% ($n = 1$) of OCD patients with nonhoarding symptoms

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($n = 90$) met diagnostic criteria for TTM. Although additional research is necessary to elucidate these findings further, it is possible that TTM is more common in people with certain OCD symptom profiles. In addition, it is unclear to what extent these findings apply to children.

Recently, Stewart et al. (2005) found that individuals diagnosed with tic-related OCD were significantly more likely to exhibit hair pulling than those with OCD alone. The authors also found that adults diagnosed with OCD and hair pulling demonstrated earlier OCD onset (e.g., 9.7 years vs. 18.0 years) and significantly fewer “contamination” obsessions and “checking” compulsions than those with OCD alone (after controlling for the presence of tics). While such recent research is promising at helping to elucidate the possible phenomenological overlap between OCD and TTM, few studies have sought to examine these findings among children.

Unfortunately, the dearth of extant literature with respect to childhood TTM gives rise to ambiguity when examining the relationship between TTM and OCD during childhood. Tolin, Franklin, Diefenbach, Anderson, & Meunier (2007) found a substantially lower prevalence of OCD (6.6%) in a clinical sample of children with TTM than has been reported previously in several studies examining adults with TTM (e.g., 13–19%; Christenson, Pyle, & Mitchell, 1991; Christenson, Mackenzie, et al., 1991; Cohen et al., 1995; Stewart et al., 2005). However, in the only study to directly compare children and adolescents with TTM (but no OCD) to those with OCD (but not TTM), Hanna (1997) found that 45% of children with TTM ($n = 5$) reported subclinical symptoms of OCD. In addition, Hanna found no statistically significant differences between these groups with respect to internalizing (e.g., withdrawn, somatic, or anxious/depressed) or externalizing (e.g., thought problems, attention problems, delinquent behavior, or aggressive behavior) symptoms as measured by the Child Behavior Checklist (Achenbach, 1991). Children with OCD, however, were more likely to receive a lifetime diagnosis of depression than those with TTM.

In contrast to both OCD and TTM, diagnostic criteria do not exist for SP. Consequently, researchers have most often operationally defined SP as the repetitive picking of one’s skin accompanied by visible tissue damage resulting in significant distress and/or functional impairment (Bohne, Wilhelm, Keuthen, Baer, & Jenike, 2002; Simeon et al., 1997). Several studies have provided empirical evidence suggesting that individuals with SP often meet diagnostic criteria for OCD (45.2–52%; Calikusu, Yucel, Pojat, & Baykal, 2003). Akin to findings described above with respect to TTM, Samuels and colleagues found that a significantly greater number of adult OCD patients with hoarding symptoms (e.g., 39%) met criteria for SP than those without hoarding symptoms (e.g., 20%). To date, empirical evidence suggests some phenomenological overlap between SP and OCD. However, a growing body of research has also described considerable overlap between SP and TTM.

Data from adult samples suggests that SP and TTM co-occur frequently and share similar demographic characteristics such as psychiatric comorbidity patterns and personality dimensions (Cullen et al., 2001; Hajcak, Franklin, Simons, & Keuthen, 2006; Lochner, Simeon, Niehaus, & Stein, 2002). Researchers have postulated that SP may serve the same function as hair pulling (e.g., reduce discomfort, tension, negative feelings, Keuthen et al., 2000; Simeon et al., 1997; Walther et al., 2009). Consequently, researchers have suggested that SP and TTM may be topographical variants of the same underlying pathology (Twohig, Hayes, & Masuda, 2006; Yeh, Taylor, Thordarson, & Corcoran, 2003).

Clearly, a great deal of research is needed to further examine the relationship between OCD and hypothesized spectrum disorders. Hollander and Yeh (2005) argue that the development of an obsessive-compulsive spectrum of disorders in DSM-V may help to expand the scientific community’s understanding of OCD

and other OCDs. Still other researchers argue that OCD is best classified as an anxiety disorder and that the incorporation of disorders such as TTM (and SP) is inappropriate due to important functional differences between compulsions, hair pulling, and SP (Abramowitz & Deacon, 2005). However, to date, research has, in large part, made little attempt to examine possible phenomenological overlap between OCD, TTM, and SP during childhood. This fact is particularly troublesome considering that these disorders each demonstrate onset during childhood. Research examining the possible relationship between these disorders during childhood would begin to provide important empirical evidence regarding the developmental course of these disorders, inform the development of more efficacious treatments, and enhance extent research delineating the relationship between OCD and other hypothesized spectrum disorders.

The current study was exploratory in nature and sought to examine the phenomenological features of children diagnosed with OCD and comorbid grooming behaviors. Specifically, the present study sought to examine the symptom profiles of children diagnosed with OCD alone (i.e., absence of TTM or SP) and those diagnosed with OCD and a comorbid grooming behavior (OCD + grooming; i.e., confirmation of TTM or SP). In addition, this study sought to examine possible relationships between children classified into these groups and several additional phenomenological characteristics (e.g., age of onset, presence/absence of tactile sensitivity, etc.) and OCD symptom severity.

1. Methods

1.1. Participants

The sample consisted of children and adolescents (hereafter referred to as children) referred to the Pediatric Anxiety Research Clinic (PARC), located in Providence, RI and affiliated with the Warren Alpert School of Medicine at Brown University, through newspaper advertisements, community outreach, and clinic referrals. Children (and their families) was recruited through several of the PARC’s ongoing research studies evaluating the phenomenology and treatment of childhood anxiety disorders (i.e., Freeman et al., 2007; POTS team, 2004) between September 2002 and February 2008. During this period of time, a total of 454 families were recruited and assessed at the PARC. Of those families, 49.1% ($n = 223$) children received a primary diagnosis of OCD and 7.2% ($n = 33$) received a “rule out” for OCD.¹ For the purposes of the current study, the term “rule out” refers to instances in which some diagnostic information is not available or consensus regarding the child’s diagnosis could not be reached (described below). Forty-two percent ($n = 185$) met diagnostic criteria for another primary psychiatric disorder, besides OCD, and 8.1% ($n = 37$) received no psychiatric diagnosis or received only a “rule out” for a particular disorder (e.g., rule out social anxiety disorder).

Because the primary aim of the current study was to examine the relationship between OCD and comorbid grooming conditions, children were only included in the current study if they received a DSM-IV-TR (American Psychiatric Association, 2001) diagnosis of OCD alone (i.e., absence of TTM and SP) or OCD plus TTM or SP obtained via intake assessment or structured diagnostic interview at the PARC. Recently, Stewart et al. (2005) found that the presence of OCD plus tics placed an individual at greater risk for exhibiting hair pulling. Therefore, because this study was interested in examining the relationship between OCD and comorbid grooming behaviors in the absence of the potentially confounding effects of tics on OCD symptoms and severity, children with comorbid tic disorders were

¹ Children receiving a “rule out” for OCD ($n = 33$) are included in the total number of children receiving either another primary diagnosis or no diagnosis.

excluded from the study.² In addition, those children receiving a “rule out” diagnosis for OCD were also excluded from this study.

In total, 202 children met this study’s inclusion criteria. Children ranged in age from 4 to 18 years ($M = 9.79$, $S.D. = 3.50$) and demonstrated a slight female predominance (52%, $n = 105$). Participants were primarily Caucasian (86%, $n = 135$), although several additional ethnic/racial groups were represented including Hispanic (2%, $n = 5$), Asian or Pacific Islander (1%, $n = 1$), multi-racial (2%, $n = 4$), and American Indian (1%, $n = 1$). A total of 56 (28%) parents failed to provide these data for their child. Families reported a median income of \$50,000–60,000.

1.2. Measures

In addition to information obtained via an intake assessment, children and their parent(s) completed several self- or parent-report measures designed to assess the child’s symptoms of anxiety, depression, and OCD. These measures and information obtained via intake assessment are described in detail below.

1.2.1. Child’s Depression Inventory (CDI; Kovacs, 1992)

The CDI is a 27-item measure designed to assess a child’s depressive symptoms. The CDI has established subscales: negative mood, interpersonal problems, ineffectiveness, anhedonia, and negative self-esteem. Questions target depressive symptoms in a 3-point, Likert scale format with previous research suggesting that the CDI demonstrates good psychometric properties (Kovacs).

1.2.2. Children’s Yale-Brown Obsessive Compulsive Scale (CY-BOCS; Scahill, Riddle, McSwiggan-Hardin, & Ort, 1997)

The CY-BOCS is a well-known 10-item semi-structured clinician-rated instrument and is designed to assess current OCD symptoms and severity. Obsessions and compulsions are each rated using a 5-point scale (scores ranging from 0 to 4) assessing multiple domains related to OCD symptom severity, including time, interference, distress, resistance, and control. Consequently, the CY-BOCS yields a total obsession score (0–20), a total compulsion score (0–20), and a combined total score (0–40) with higher scores indicating increasing symptom severity. Previous research suggests that the CY-BOCS demonstrates good psychometric properties (Scahill et al., 1997).

1.2.3. Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997)

The MASC is a 39-item questionnaire assessing the presence of various anxiety symptoms (e.g., I get scared when my parents go away) via a 4-point Likert scale (0 = never, 1 = rarely, 2 = sometimes, 3 = often) yielding four subscales (i.e., social anxiety, separation anxiety, harm avoidance, and physical symptoms) and a total score. The MASC is a normative measure that utilizes T-scores. Higher T-scores indicate increasingly severe symptoms of anxiety. Research has demonstrated good psychometric properties for the MASC and its subscales (March et al., 1997; Wood, Piacentini, Bergman, McCracken, & Barrios, 2002).

1.2.4. Obsessive compulsive inventory (OCI; Foa et al., submitted for publication)

The OCI is a 21-item self-report measure designed to assess symptoms of OCD (e.g., I check many things over and over again) via a 3-point Likert scale (0 = never, 1 = sometimes, 2 = always) with higher scores indicating increasingly severe symptoms of OCD. The OCI includes six subscales: doubting, checking, hoarding, washing, ordering, and neutralizing, all demonstrating strong

internal consistency ($\alpha > .81$) and good convergent validity with the CY-BOCS (Foa et al., submitted for publication).

1.2.5. Data obtained via intake assessment

All children were evaluated at the PARC by either a child psychologist or psychiatrist who conducted a brief to more detailed intake assessment (depending upon symptoms endorsed by the patient and family) assessing Axis I and II disorders with considerable time spent on anxiety, mood, and disruptive behavior disorders. Next, the clinician completed a battery of questions assessing various aspect of OCD, if applicable, including initial onset (i.e., gradual vs. abrupt) and course of the disorder (i.e., waxing and waning, continuous, episodic, or “other”). For these two items, clinicians were asked to mark the appropriate box (e.g., gradual vs. abrupt) based upon information obtained during the intake assessment. Additionally, clinicians assessed for the presence of grooming conditions (e.g., SP, TTM/hair pulling), impairment resulting from these behaviors (e.g., Does the child’s SP or hair pulling impair day-to-day functioning?), the child’s developmental history (e.g., birth complications, speech or motor delays, etc.), and whether the child experiences tactile/sensory sensitivity (e.g., Is he/she bothered by the tags on his/her shirt?). For these aforementioned items, clinicians were asked to mark the most appropriate box (e.g., yes or no) based upon the patient’s parent’s response to each item. Clinicians inquired as to the family’s history of psychiatric illness and current prescribed medications. Finally, obsessions and compulsions associated with OCD (i.e., fear of dirt and germs, washing/cleaning compulsions, etc.) were assessed at the end of the intake assessment via administration of a semi-structured interview (i.e., CY-BOCS).

1.3. Procedure

Families were recruited as part of several ongoing studies at the PARC (described above). Initially, referred parents completed a phone screen with one of the PARC’s research assistants (RAs). This screening procedure was designed to triage those patients reporting symptoms consistent with OCD or another anxiety disorder to an intake assessment. Subsequently, families were sent a packet of information (e.g., demographic forms, CDI, MASC, parent-report measures, etc.) and asked to return this packet to the clinician at their appointment. Upon arriving at the PARC, the family (i.e., child and at least one parent/legal guardian) met with a trained clinician (e.g., psychology intern, postdoctoral fellow, licensed clinical psychologist, child psychiatry resident, or child psychiatrist). In total, 15 clinicians were trained to conduct clinical interviews, under the direction of a premier child psychiatrist (HLL) and OCD researcher of more than 20 years. Clinicians were first required to observe and then to be observed by another, experienced clinician before he/she was allowed to conduct an intake assessment.

The purpose of conducting these intake assessments was to assess inclusion criteria for ongoing projects. An incentive to participation in an intake assessment was a no-charge, brief assessment provided to the family and likely either free treatment as part of one of the PARC’s ongoing studies or referral to an outpatient, fee for services, therapist or psychiatrist. Within 1-week of completing the intake assessment, information regarding the child’s case was reviewed at a weekly meeting with at least one of two licensed clinical psychologists (i.e., AG and/or JF, co-directors of the PARC) and/or a senior child psychiatrist (HLL), two postdoctoral fellows, and at least one child psychology intern. Subsequently, an appropriate psychiatric diagnosis or multiple diagnoses were conferred (if applicable). However, diagnoses were only conferred under a high-degree of certainty. That is, if the group of individuals described previously did not reach consensus

² Twenty-five children were excluded from the current analyses due to the presence of a comorbid tic disorder diagnosis.

as to the appropriate diagnosis for a child, a “rule-out” was applied. Those children not meeting inclusion criteria for ongoing studies received a letter from the PARC providing treatment referrals in the general community for issues raised during the intake assessment.

1.4. Data analytic strategy

To better assess the possible phenomenological overlap between OCD and comorbid grooming behaviors, children meeting initial inclusion criteria for the current study were classified into two groups based upon data collected during their assessment. These groups were created based upon conferred diagnoses for the presence of an OCD diagnosis (described in more detail above) and prior research examining the relationship between OCD and related disorders in adult samples (Hanna et al., 2005; Stewart et al., 2005; e.g., participant selected based upon self-report of hair pulling/skin picking rather than requiring participant to meet full diagnostic criteria for TTM). Patients receiving a “rule out” diagnosis for OCD ($n = 34$) or any other disorder described below were not included in the present sample and consequently were not included in creation of these groups.

Children meeting diagnostic criteria for OCD but denying symptoms of TTM (e.g., hair pulling) or SP were classified as “OCD alone” ($n = 154$). As mentioned previously, formal diagnostic criteria do not exist for SP. In addition, the format of the questions used to assess hair pulling do not provide a comprehensive assessment of the degree to which these children meet formal diagnostic criteria for TTM (e.g., criteria B and C) as set forth by the DSM-IV-TR (American Psychiatric Association, 2001). However, researchers, particularly with respect to children, frequently exclude criteria B (tension prior to pulling) and C (gratification, relief, or pleasure after pulling) in research examining the phenomenology of TTM (Diefenbach, Tolin, Crocetto, Maltby, & Hannan, 2005; Watson, Dittmer, & Ray, 2000). In addition, recent research suggests no significant differences between youths meeting full diagnostic criteria for TTM (i.e., chronic hair pulling in the presence of criteria B and C) and those meeting only minimal criteria (i.e., chronic hair pulling in the absence of criteria B and/or C) with respect to distress and functional impact resulting from pulling and comorbid psychiatric symptoms (i.e., symptoms of anxiety and depression; Conelea et al., 2008). Given that relatively few participants ($n = 12$; 5.3%) reported symptoms of TTM and the documented phenomenological overlap between TTM and SP, we decided to emulate prior researchers’ decision to include children that pulled their hair or picked their skin ($n = 36$; 15.9%) into a single group classified as “OCD + grooming” ($n = 48$, 21.1%; e.g., Hanna et al., 2005). Inclusion in this group required functional impairment (e.g., academic, social, or occupational difficulties) resulting from pulling/picking and that the pulling/picking was not considered by the clinician to be a symptom of OCD. Table 1 provides descriptive data for children classified into these respective groups.

1.4.1. Data analysis

Categorical variables (e.g., gender, OCD symptom dimensions, type of OCD onset, etc.) were examined using chi-square analyses with adjusted residuals. Interval data, such as MASC and CDI T-scores and OCI and CY-BOCS scores, were examined using independent sample *t*-tests. Prior to beginning these analyses, however, independent sample *t*-tests were conducted to ensure that those in the OCD alone ($M = 2.01$, $S.D. = 1.2$) group did not differ from those in the OCD + grooming group ($M = 2.14$, $S.D. = 1.10$) with respect to the number of comorbid psychiatric diagnoses. Results revealed no statistically significant differences between groups [$t(172) = 0.11$, $P = .92$] with attention-deficit hyperactivity disorder (ADHD), generalized anxiety disorder (GAD), oppositional defiant disorder (ODD), separation anxiety

Table 1

Descriptive data for OCD alone and grooming-related OCD.

	OCD alone	Grooming-related OCD
N	154	48
Gender (male:female)	51:49	36:64
Age at presentation (years)	9.54 (3.55)	10.60 (3.25)
Age at onset (years)	7.06 (3.05)	7.72 (3.30)
CY-BOCS score	22.48 (5.19)	23.65 (4.04)
Number of obsessions	2.79 (1.81)	4.02 (1.82)
Number of compulsions	4.37 (2.00)	5.95 (1.96)
MASC (T-score)	58.60 (11.54)	60.78 (8.85)
CDI (T-score)	55.20 (12.83)	54.10 (12.97)
OCI (raw score)	16.57 (6.92)	19.30 (9.03)

Note: Groups did not differ with respect to gender, age, or age at onset ($P > .05$).

Table 2

Presence of obsessions or compulsions by comorbidity group.

CYBOCS categories	OCD alone	Grooming-related OCD
Contamination obsessions*	69%	85%
Aggressive obsessions*	52%	68%
Sexual obsessions*	16%	30%
Hoarding obsessions	30%	39%
Magical/superstitious obsessions	28%	43%
Somatic obsessions**	20%	40%
Religious obsessions*	33%	53%
Miscellaneous obsessions	34%	48%
Washing compulsion*	59%	79%
Checking compulsion**	58%	79%
Repeating compulsion**	48%	79%
Hoarding compulsion	30%	45%
Superstitious compulsion	15%	24%
Rituals involving others	52%	66%
Ordering compulsion	50%	64%
Counting compulsion**	24%	47%
Miscellaneous compulsion**	50%	76%

* $P < .05$.

** $P < .01$.

disorder (SAD), and depression among the most frequently occurring comorbid diagnoses. Because the current study was exploratory in nature, an alpha level of $P = .05$ was used to determine statistical significance.

2. Results

2.1. OCD symptoms

Chi-square analyses examined differences with respect to the frequency of OCD symptom dimensions across the two groups (Table 2). Children in the OCD + grooming group were more likely to experience contamination ($\chi^2(1) = 4.62$, $P = .03$), aggressive ($\chi^2(1) = 3.68$, $P = .05$), sexual ($\chi^2(1) = 4.83$, $P = .03$), somatic ($\chi^2(1) = 7.75$, $P < .01$), and religious obsessions ($\chi^2(1) = 6.08$, $P = .01$), as well as washing ($\chi^2(1) = 5.82$, $P = .01$), checking ($\chi^2(1) = 6.49$, $P = .01$), repeating ($\chi^2(1) = 13.21$, $P < .01$), counting ($\chi^2(1) = 9.05$, $P < .01$), and miscellaneous (e.g., ritualized eating behavior; $\chi^2(1) = 8.62$, $P < .01$) compulsions.

An independent samples *t*-test examined the number of obsessions and compulsions children reported. Those in the OCD + grooming group reported significantly more obsessions ($M = 4.02$, $S.D. = 1.82$) and compulsions ($M = 5.95$, $S.D. = 1.96$) than those in the OCD alone group ($M = 2.79$, $S.D. = 1.81$, $t(168) = -3.87$, $P \leq .01$; $M = 4.37$, $S.D. = 2.00$; $t(132) = -4.28$, $P < .01$, respectively).

2.2. Severity, onset, and course of OCD

The severity of participants’ OCD was measured via self-report (i.e., OCI-CV) and clinician-administered, semi-structured interview

(i.e., CY-BOCS). Two separate univariate tests of covariance (ANCOVA) examined differences between groups for OCI and CY-BOCS scores using total number of obsessions and compulsions as a covariate. No significant differences between groups were found with respect to OCI scores ($F(1, 67) = 0.72, P = .40$) or CY-BOCS scores, $F(1, 58) = 0.02, P = .89$. Two separate chi-square analyses were conducted to examine differences between groups with respect to both OCD onset (i.e., abrupt vs. gradual) and OCD course (i.e., waxing and waning, continuous, episodic, or “other”) with results revealing no statistically significant differences between groups, $\chi^2(1) = 0.42, P = .52$, and, $\chi^2(3) = 1.25, P = .74$, respectively.

2.3. Developmental history

Chi-square analyses examined possible differences with respect to developmental history and tactile/sensory sensitivity. No statistically significant differences were found between groups with respect to developmental history, such as birth complications ($\chi^2(1) = 1.02, P = .31$), speech ($\chi^2(1) = 0.09, P = .76$) and gross ($\chi^2(1) = 0.01, P = .97$), or fine motor ($\chi^2(1) = 0.49, P = .48$) delays. However, chi-square analyses did reveal statistically significant differences between groups with respect to the presence of tactile/sensory sensitivity, $\chi^2(1) = 8.76, P < .01$, suggesting that those in the OCD + grooming group presented with significantly more tactile/sensory difficulties (74% of sample) than those with OCD alone (49% of sample).

2.4. Phenomenology and family history

No statistically significant differences were found between groups with respect to demographic characteristics, such as age at assessment ($t(200) = -1.85, P = .07$), age of onset of OCD ($t(155) = -1.16, P = .25$), or gender ($\chi^2(1) = 2.79, P = .09$). Additionally, no statistically significant differences were found with respect to self-reported symptoms of anxiety (i.e., MASC T-scores; $t(120) = -.91, P = .36$) or depression [i.e., CDI T-scores; $t(124) = 0.40, P = .69$]. Finally, no statistically significant differences were found between groups with respect to parent-reported family history of psychiatric diagnoses, including tics ($\chi^2(1) = 0.19, P = .66$), ADHD ($\chi^2(1) = 0.07, P = .80$), OCD ($\chi^2(1) = 0.01, P = .92$), depression ($\chi^2(1) = 0.08, P = .78$), or anxiety ($\chi^2(1) = 1.20, P = .27$).

3. Discussion

To our knowledge, this is the first study to examine possible differences in symptom profiles and other phenomenological characteristics among children presenting with OCD alone and those presenting with OCD and a comorbid grooming behavior (e.g., OCD + grooming). Results suggest that those children presenting with a comorbid grooming behavior demonstrated different symptom profiles than those with OCD alone. In particular, these children reported more obsessions and compulsions than those with OCD alone via semi-structured interview (e.g., CY-BOCS), but were equivalent on two measures of symptom severity (e.g., CY-BOCS and OCI). The parents of children presenting with a comorbid grooming behavior were also more likely to report that their child experienced tactile/sensory sensitivity than those in the OCD alone group. In addition, no differences were found between groups with respect to developmental delays, age at OCD onset, course of OCD, or the presence of mood or anxiety symptoms.

Findings from the current study differ from previous research examining symptom profiles in adults with OCD (e.g., Stewart et al., 2005). More specifically, research has noted a decreased prevalence of “contamination” obsessions and “checking” compulsions in adults diagnosed with OCD and hair pulling (Stewart et al.,

2005). Conversely, in the current study, children presenting with a comorbid grooming condition were more likely to report contamination, aggressive, sexual, somatic, and religious obsessions and washing/cleaning, checking, repeating, counting, and miscellaneous compulsions than those with OCD alone. Perhaps the current findings represent an earlier phase in the developmental progression of OCD symptomatology. This may help to explain the apparent phenomenological overlap between OCD and hair pulling noted by Stewart and colleagues. Presently, an absence of empirical literature exists examining the phenomenology of school-aged children (e.g., under 12 years of age) presenting with grooming conditions. Consequently, it is possible that younger children presenting with either TTM or SP are more likely to demonstrate increased rates of both obsessions and compulsions. If true, this would provide stronger evidence for the inclusion of TTM and SP (at least among children afflicted with these conditions) alongside other posited OCDs. Clearly, confirmation of this hypothesis is not possible given this study’s design though the need for additional research in this area is clearly warranted. Alternatively, it is also possible that methodological differences between those two studies contribute to these differences in results. Future research may wish to examine the developmental progression of OCD symptoms in children with OCD alone and those presenting with a comorbid grooming condition(s). Data of this sort may help researchers to develop a better etiological understanding of both OCD and hypothesized spectrum disorders and enhance future treatment development.

Findings from the current study have several important clinical implications. First, these findings suggest that the presence of a comorbid grooming condition (i.e., TTM or SP) among children with OCD is not a trivial, infrequently occurring phenomenon (i.e., 21.1% of the sample). Consequently, phenomenological differences between OCD alone and OCD plus a comorbid grooming condition should be carefully considered. Second, empirical evidence from the current study suggests that children presenting with a comorbid grooming condition likely present with a greater number and variety of obsessions and compulsions than those with OCD alone. Thirdly, and in a similar vein, these findings suggest that children presenting with OCD plus TTM or SP may represent a more heterogeneous form of the disorder. Although requiring empirical examination, it is possible that these children may necessitate modifications to existing treatment manuals. That is, given the potential increase in breadth of symptom hierarchies among these children, perhaps additional sessions to those allotted in most cognitive-behavior therapy (CBT) treatment manuals are necessary. To our knowledge, no studies have sought to assess for or examine the possible moderating effects of SP, TTM, or other grooming behaviors (e.g., bruxism, nail biting, etc.) on behavioral or pharmacological treatment efficacy. Future research may well wish to examine this possibility further.

Despite this study’s important clinical and research implications, several limitations should be noted. First, the present sample consisted of children presenting with their parent(s) to a specialty clinic for the assessment and/or treatment of their child’s OCD. Consequently, the current sample may not provide an accurate representation of childhood OCD in the general population. Second, due to the ineligibility of some children (and their families) for ongoing research projects at the PARC and the need for efficient assessment of a child’s psychiatric symptoms, not all children from the current sample were conferred a psychiatric diagnosis via a psychometrically validated structured diagnostic interview. Therefore, the reliability of data gathered during initial clinical interviews could not be ascertained. In light of this fact, a conservative, group-consensus approach to diagnosis for these children (and those completing structured interviews) led by an expert in the field of childhood OCD and anxiety disorders was

implemented after data had been collected. A similar approach has been utilized by previous researchers to examine differences between children with OCD and those with tic-related OCD (i.e., children presenting with OCD plus a comorbid tic disorder diagnosis; Hanna et al., 2002). Lastly, the high rates of tactile sensitivity across both groups may be due to our method of data collection (e.g., “yes” or “no” response) and/or the average age of our sample (e.g., less than 10 years). In lieu of a control group utilizing similar methodology, caution should be exercised when interpreting these results.

Despite the limitations noted above, the current study provides important empirical evidence regarding phenomenological differences between children presenting with OCD alone and those with a comorbid grooming behavior. Still a great deal of work needs to be done. Future research should work towards replicating this study's findings utilizing structured diagnostic interviews and larger sample sizes. Research should also work towards developing a better understanding of the developmental progression of OCD among children with the disorder. Research has already begun to examine the relationship between OCD and tic-related OCD (Hanna et al., 2002). Future research may wish to examine the phenomenological overlap between children diagnosed with OCD alone, OCD plus a grooming condition, and tic-related OCD. In addition, future research may also seek to develop or refine additional comparison groups including children diagnosed with OCD and body dysmorphic disorder, an eating disorder, or other hypothesized spectrum disorders. To truly obtain a better understanding of the differences and similarities between these groups over the lifespan, researchers should examine differences and similarities between symptom profiles and other phenomenological characteristics longitudinally beginning during early childhood, perhaps before the child's symptoms reach the clinical threshold. Developing a better understanding of the etiological factors (e.g., genetic, phenomenological, and neurobiological) OCD, SP, TTM, and other hypothesized spectrum disorders share will help researchers develop better empirical evidence supporting or refuting the utility of an OCS/D classification scheme, treatment interventions, and consequently, improve the quality of life of those children (and adults) afflicted with these often misunderstood disorders.

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