

## Obsessive-Compulsive Disorder in the Adolescent Brain Cognitive Development Study: Impact of Changes From *DSM-IV* to *DSM-5*



### To the Editor:

**T**he *DSM*, used to diagnose psychiatric disorders, was revised to *DSM-5* in 2013. Changes were made to the criteria for obsessive-compulsive disorder (OCD), a disorder with a lifetime prevalence of 1% to 3% in children.<sup>1</sup> Prior revisions to OCD criteria (from *DSM-III* to *DSM-IV*) resulted in lower reported prevalence rates,<sup>2</sup> but this is not yet clear with *DSM-5*. In *DSM-5*, the definition of obsessions was broadened (Table 1), and the requirement that obsessions cause marked anxiety or distress was removed. Thus we examined rates of OCD within the Adolescent Brain Cognitive Development (ABCD) study<sup>3</sup> using both *DSM-IV* and *DSM-5* criteria.

The ABCD study is a large, longitudinal study of adolescent brain development and health.<sup>3</sup> Child psychiatric diagnoses are identified using the computerized parent version of the Kiddie Schedule of Affective Disorders (K-SADS-COMP).<sup>4</sup> Other reported measures include the Child Behavior Checklist<sup>5</sup> (CBCL) and parent-reported child psychiatric diagnosis at screening.

Data were accessed from the NIMH Data Archive and included 11,694 youths aged 9 to 10 years, with complete demographic information. OCD, using *DSM-5* criteria, was assessed with the K-SADS-COMP. To evaluate *DSM-IV* criteria, responses were re-scored such that obsessions were required to cause significant distress. The definition of compulsions and the significance criteria (obsessions and/or compulsions either cause significant distress, take excessive time, or interfere with functioning) were unchanged. The 2 diagnostic criteria sets, both measured with the K-SADS-COMP, were compared using linear mixed models including site (and family nested within site) as random effects and age, sex, and race as fixed effects.

Demographic data are presented in Table 2. All children who met *DSM-IV* OCD criteria also met *DSM-5*

OCD criteria. There was a 10% increase in identified OCD associated with *DSM-5* criteria, with 7% of the sample meeting both *DSM-IV* and *DSM-5* criteria and 7.7% meeting only *DSM-5* criteria. This additional 0.7% reflected an increase based on obsessive symptomatology (from 1.5% to 2.3% of the total sample, a 65% increase).

Children who met only *DSM-5* criteria did not differ in age or sex but were significantly more likely to be White and less likely to be Black than those who met *DSM-IV* and *DSM-5* criteria. Rates of other psychiatric diagnoses were similar in both OCD groups. The OCD groups did not differ in Total Problems or Anxious/Depressed scale scores on the CBCL, although both OCD groups had significantly higher scores than participants without OCD (Total Problems,  $F_{2,1824} = 305.8, p < .001$ ; Anxious/Depressed,  $F_{2,1824} = 335.2, p < .001$ ) (Table 2). Likewise, parental Total Problem scores on the Adult Self-Report were not different between the 2 OCD groups, suggesting that psychopathology of the reporting parent was not a factor in the increase in OCD using *DSM-5* criteria.

*DSM-5* revisions resulted in a 10% increase in identified OCD in the ABCD sample. As *DSM-5* also removed 2 criteria for obsessions (ie, that they are not excess worry about real-life problems, and that they are recognized as a product of one's own mind), this increase in OCD diagnoses is likely a conservative estimate. The rate of OCD in the ABCD study (7.7%) is higher than the 1% to 3% reported in previous literature.<sup>1</sup> Validation research on the KSADS-COMP found parents' diagnoses of OCD to be 2.8 times higher than those of clinicians,<sup>4</sup> suggesting that rates of *DSM-5* OCD in ABCD would likely be around 2.7% if assessed by a clinician.

OCD criteria were met for compulsions more often than obsessions. Ritualized behavior (eg, a rigid bedtime routine) is common in children and may be difficult for parents to distinguish from compulsions. However, given that comorbidity and parent-rated total problems were higher for both OCD groups than for those without OCD, there is little reason to believe that the KSADS-COMP identifies a less severe form of OCD.

It should be noted that the ABCD cohort is not a true epidemiological sample, and thus, it is unclear the degree to

**TABLE 1** Revisions to the Diagnostic Criteria for Obsessive-Compulsive Disorder (OCD) From *DSM-IV* to *DSM-5***DSM-IV OCD criteria**

A. The presence of either obsessions or compulsions

Obsessions as defined by (1), (2), (3), and (4):

1. Recurrent and persistent thoughts, *impulses*, or images that are experienced, at some time during the disturbance, as intrusive and *inappropriate* and that cause marked anxiety or distress.
2. The thoughts, impulses, or images are not simply excessive worries about real-life problems.
3. The *person* attempts to ignore or suppress such thoughts, *impulses*, or images, or to neutralize them with some other thought or action.
4. The person recognizes that the obsessional thoughts, impulses, or images are a product of his or her own mind (not imposed from without as in thought insertion).

Compulsions as defined by (1) and (2): [the definition is unchanged between *DSM-IV* and *DSM-5*]

1. Repetitive behaviors (eg, hand washing, ordering, checking) or mental acts (eg, praying, counting, repeating words silently) that the person feels driven to perform in response to an obsession, or according to rules that must be applied rigidly. [Unchanged between *DSM-IV* and *DSM-5*]
2. The behaviors or mental acts are aimed at preventing or reducing distress or preventing some dreaded event or situation; however, these behaviors or mental acts either are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive. [Unchanged between *DSM-IV* and *DSM-5*]

B. At some point during the course of the disorder, the person has recognized that the obsessions or compulsions are excessive or unreasonable. NOTE: this does not apply to children.

C. The obsessions or compulsions cause marked distress, are time consuming (take more than 1 hour a day), or significantly interfere with the person's normal routine, occupational (or academic) functioning, or usual social activities or relationships. [Unchanged between *DSM-IV* and *DSM-5*]

D. If another Axis I disorder is present, the content of the obsessions or compulsions is not restricted to it (eg, preoccupation with food in the presence of an eating disorder; hair pulling in the presence of trichotillomania; concern with appearance in the presence of body dysmorphic disorder; preoccupation with drugs in the presence of a substance use disorder; preoccupation with having a serious illness in the presence of hypochondriasis; preoccupation with sexual urges or fantasies in the presence of a paraphilia; or guilty ruminations in the presence of major depressive disorder).

**DSM-5 OCD criteria: revisions**

A. The presence of either obsessions or compulsions

Obsessions as defined by (1 and 2):

1. Recurrent and persistent thoughts, *urges*, or images that are experienced, at some time during the disturbance, as intrusive and *unwanted*, and that *in most individuals* cause marked anxiety or distress.
2. *REMOVED*
3. The *individual* attempts to ignore or suppress such thoughts, *urges*, or images, or to neutralize them with some other thought or action (*ie, by performing a compulsion*).
4. *REMOVED*

B. *REMOVED*

D. The disturbance is not better explained by the symptoms of another mental disorder (eg, excessive worries, as in *generalized anxiety disorder*; preoccupation with appearance, as in *body dysmorphic disorder*; difficulty discarding or parting with possession, as in *hoarding disorder*; hair pulling, as in *trichotillomania* [hair-pulling disorder]; skin picking, as in *excoriation* [skin-picking disorder]; stereotypies, as in *stereotypic movement disorder*; ritualized eating behavior, as in *eating disorders*; preoccupation with substances or gambling, as in *substance-related and addictive disorders*; sexual urges or fantasies, as in *paraphilic disorders*; impulses, as in *disruptive, impulse-control, and conduct disorders*; guilty ruminations, as in *major depressive disorder*; thought insertion or delusional preoccupations, as in *schizophrenia spectrum and other psychotic disorders*; or repetitive patterns of behavior, as in *autism spectrum disorder*).

(continued)

TABLE 1 Continued

**DSM-IV OCD criteria****DSM-5 OCD criteria: revisions**

E. The disturbance is not due to the direct physiological effects of a substance (eg, a drug of abuse, a medication) or a general medical condition. [Unchanged between *DSM-IV* and *DSM-5*]

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TABLE 2 Sample Demographics and Rates of Obsessive-Compulsive Disorder

	Both <i>DSM-IV</i> and <i>DSM-5</i> OCD	<i>DSM-5</i> OCD only	CTRL, no OCD
N (%)	816 (7.0)	83 (0.7)	10,795 (92.3)
Age	118.5 ± 7.3	118.5 ± 6.9	119.0 ± 7.5
Sex, female (%)	40.6	32.5	48.4 <sup>a</sup>
Race, White (%)	44.7	61.5 <sup>b</sup>	52.7
Race, Black (%)	20.8	8.4 <sup>b</sup>	14.6
Race, Hispanic (%)	21.5	18.1	20.1
Race, Asian (%)	1.1	1.2	2.2
Race, Other (%)	11.9	10.8	10.4
Parent-reported mental health diagnosis at screen (%)	33.6	30.1	14.9 <sup>c</sup>
CBCL—Total Problems (t score)	54.3 [53.6–55.1]	52.6 [50.4–54.9]	45.2 [44.8–45.5] <sup>c</sup>
CBCL—Anxious Depressed (t score)	58.2 [57.7–58.6]	57.9 [56.7–59.1]	53.1 [52.9–53.3] <sup>c</sup>
K-SADS-COMP Delusions (%)	2.23	2.41	0.58 <sup>c</sup>
K-SADS-COMP Generalized Anxiety Disorder (%)	3.68	1.20 <sup>b</sup>	0.53 <sup>a</sup>

**Note:** All participants who met *DSM-IV* criteria for obsessive-compulsive disorder (OCD) also met *DSM-5* criteria. CBCL scores are reported as LSMeans [95% CI]. CBCL = Child Behavior Checklist; CTRL = control; K-SADS-COMP = Schedule for Affective Disorders and Schizophrenia for School-Aged Children; LSMeans = least squares means.

<sup>a</sup> $p < .001$  CTRL different from *DSM-5* group by  $\chi^2$  test.

<sup>b</sup> $p < .05$ , *DSM-5* group different from *DSM-IV* group by  $\chi^2$  test.

<sup>c</sup> $p < .001$  CTRL different from all diagnostic groups by  $\chi^2$  test or mixed model analysis of variance.

which present findings extend to OCD prevalence rates in the US population. However, the large, demographically diverse cohort in ABCD provides preliminary data regarding the rates of OCD in children, and the opportunity to exploit the rich biological and neurocognitive data to identify potential biomarkers that could improve the diagnosis of OCD.

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Dr. Potter served as the statistical expert for this research.

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## REFERENCES

1. Zohar AH. The epidemiology of obsessive-compulsive disorder in children and adolescents. *Child Adolesc Psychiatr Clin*. 1999;8:445-460.
2. Crino R, Slade T, Andrews G. The changing prevalence and severity of obsessive-compulsive disorder criteria from DSM-III to DSM-IV. *Am J Psychiatry*. 2005;162:876-882.
3. Barch DM, Albaugh MD, Avenevoli S, *et al*. Demographic, physical and mental health assessments in the adolescent brain and cognitive development study: rationale and description. *Dev Cogn Neurosci*. 2018;32:55-66.
4. Townsend L, Kobak K, Kearney C, *et al*. Development of three Web-based computerized versions of the Kiddie Schedule for Affective Disorders and Schizophrenia Child Psychiatric Diagnostic Interview: preliminary validity data. *J Am Acad Child Adolesc Psychiatry*. 2020;59:309-325.
5. Achenbach TM, Edelbrock CS. Manual for the Child Behavior Checklist and Revised Child Behavior Profile. Burlington, VT: Queen City Printers; 1983.

## The Path to Child and Adolescent Psychiatry



### To the Editor:



**T**he United States has a critical shortage of child and adolescent psychiatrists such that 70% of US counties do not have any child and adolescent psychiatrists.<sup>1</sup> Since 2014, the number of US and Canadian medical school applicants to psychiatry residencies has increased by 69%; however, the number of child and adolescent psychiatry fellowship applicants has increased by

only 11%.<sup>2</sup> Up to two-thirds of psychiatry residents report considering a career in child and adolescent psychiatry; however, only one-fourth of residents ultimately apply for a child and adolescent psychiatry subspecialty training.<sup>3,4</sup> We surveyed child and adolescent psychiatry fellows across the country to understand the different pathways into child and adolescent psychiatry, with the hope of providing program directors' and faculty mentors' guidance on how to generate interest in child and adolescent psychiatry and to support residents in this pursuit.

We distributed an electronic survey in 2019 to 40 child and adolescent psychiatry fellowship programs across the country, and received 55 responses (approximately 10% of all child and adolescent psychiatry fellows, 27% response rate for all programs with a completed response; see Supplement 1, available online) ranging from 1 to 6 fellows at 23 geographically diverse programs. Programs were selected to provide a broad representation of both program size and geographic location. Our Institutional Review Board approved the study.

Nearly one-half of respondents (24 of 55) reported that they decided to subspecialize in child and adolescent psychiatry before or during medical school. The majority of respondents (45 of 55) fast-tracked into fellowship and most commonly cited 1 or more of the following reasons for fast-tracking: they wanted to reduce their total time in training (41 of 45); they did not expect significant benefit from the fourth year of residency (22 of 45); and/or they wanted to start working with children and adolescents sooner (20 of 45). During their general psychiatry training, respondents sought advice about a child and adolescent psychiatry fellowship from one or more of the following sources: most commonly, child and adolescent psychiatry fellows (27 of 55), residency program directors (22 of 55), and/or other non-fellowship-program-director child and adolescent psychiatry faculty (28 of 55).

All received professional exposure to child and adolescent psychiatry (55 of 55) in 1 or more clinical settings, with most involved in outpatient evaluations (40 of 55), inpatient work (40 of 55), emergency department evaluations (35 of 55), and longitudinal outpatient care (26 of 55). When asked for the single primary reason for ultimately choosing to pursue child and adolescent psychiatry subspecialty training, most fellows noted that they wanted to work with patients of all ages across the lifespan (21 of 55) or preferred to work with children over adults (19 of 55). A variety of other primary reasons were chosen by only a few (ranging from 1 to 5 respondents) and included wanting to work within educational systems, a desire to improve work-life balance, financial incentives, better career opportunities, and the influence of mentorship.

Using Likert-scale responses to specific prompts, respondents were also asked about their qualitative experience when choosing to pursue child and adolescent psychiatrist