

Letters to the Editor

OCD in College Athletes

TO THE EDITOR: Extensive media coverage of the 2016 Summer Olympics in Rio de Janeiro and the emergence of sports medicine as a subspecialty reflect elite athletes' important societal roles. While the optimization of athletes' physical performance is a priority, their mental health is largely ignored. Psychiatric studies of competitive athletes are nonexistent in the United States and are limited worldwide, despite risks to athletes that include sleep disruption, travel, low autonomy, and performance demands (1–3). Physicians are biased toward athletes' mental well-being (3, 4); moreover, athlete help-seeking is stigmatized (4).

Obsessive-compulsive disorder (OCD) is a debilitating, treatable illness affecting 2.3% of adults, with subthreshold obsessive-compulsive symptoms occurring in 28.2% of adults (5). Competitive athletes' traits, including overresponsibility, perfectionism, and secrecy, mask OCD identification (4, 5). Calorie obsession, body hyperfocus, superstitions, and rituals are normative for athletes (2). We report findings from the first OCD study in collegiate athletes, derived from two data collection waves of a study on college athletic stress at a Division I National Collegiate Athletic Association school.

Method

In year 1, 20.1% (N=54) of 269 athletes representing 13 sports screened positive for OCD on the validated Psychiatric Diagnostic Screening Questionnaire (PDSQ) (6), prompting detailed examination. In year 2, 270 (141 of whom were included in year 1) completed the PDSQ, the Florida Obsessive-Compulsive Inventory (FOCI) (7) (diagnostic score ≥ 8), and the Obsessive-Compulsive Checklist Patient Rating Scale (8) (detailing symptoms). "All-conference" elite-level athletes were identified. National Comorbidity Survey Replication epidemiologic data were used for comparison (5). Analyses were conducted via SPSS, version 20 (SPSS, Chicago) (significance threshold $p < 0.05$).

Results

All participants denied OCD diagnosis, as confirmed by medical records. Nearly 35% (N=94) of year 2 participants endorsed obsessive-compulsive symptoms, 16.7% (N=45) screened positive for OCD, and 5.2% (N=14) met full OCD criteria. Among OCD-affected athletes, half reported more

than five symptom types, with hoarding, ordering, and checking as the most common (Table 1). The mean age at onset was 14.3 years (SD=3.9), 5.3 years (SD=4.8) prior to assessment, which is comparable to OCD findings from the National Comorbidity Survey Replication (5). All-conference athletes reported fewer OCD symptoms ($t=2.36$, $df=119.6$, $p=0.02$) and screened positive less frequently for OCD ($\chi^2=5.68$, $p=0.017$) compared with their peers.

Discussion

Self-report on the FOCI suggests that OCD may be as common as 5.2% among college athletes, more than doubling expected rates (2.3%). Symptoms caused moderate to severe distress. Despite self-reported symptoms lasting more than half a decade, no athletes who screened positive for OCD had been diagnosed, and few received psychological treatment. All-conference athletes had lower OCD and obsessive-compulsive symptom rates compared with other college athletes, suggesting a negative association with performance. Although interviews confirming diagnoses were unavailable, the validity of this study's findings is supported via comparability with expected population rates of obsessive-compulsive symptoms, OCD onset, and symptom types. Physicians should remain vigilant for OCD in athletes given its association with distress and its treatment potential.

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TABLE 1. Prevalence of Obsessions and Compulsions by Symptom Dimension, Type, and Associated Distress in a Study of Obsessive-Compulsive Disorder (OCD) in College Athletes

Compulsive Disorder (OCD) in College Athletes															
Item Description ^a	Obsession/ Compulsion Type	Full Sample (N=270)		PDSQ Positive Screen (N=45) ^b		FOCI Positive Diagnosis (N=14) ^c		All- Conference Athletes (N=53)		Non-All- Conference Athletes (N=217)		Associated Distress (N=270)		Clinical Distress (score >8) (N=14)	
		N	%	N	%	N	%	N	%	N	%	Mean	SD	Mean	SD
Any hoarding symptoms		98	37.5	21	55.8	8	61.5	15	29.4	83	39.5				
Fear of losing important information and/or indecision about throwing things out	Hoarding obsessions	62	23.7	15	34.1	6	46.2	8	15.7	54	25.6	3.8	2.36	6.17	1.94
Fear of losing things/ "need to know"	Hoarding or need to know	77	29.4	20	45.5	6	46.2	12	23.5	65	30.8	3.99	2.40	5.50	2.67
Hoarding/having clutter	Hoarding compulsions	7	2.7	0	0.0	0	0.0	2	3.9	5	2.4	3.86	2.67	–	
Any symmetry symptoms		80	30.8	16	51.2	7	58.3	10	19.6	70	33.5				
Need to engage in ordering	Arranging compulsions	38	14.4	16	36.4	6	46.2	5	9.8	33	15.6	4.72	2.96	8.50	2.07
Reread/rewrite; repeating behaviors	Repeating compulsions	40	15.3	12	27.9	4	30.8	7	13.7	33	15.7	4.18	2.86	9.25	0.96
Symmetry/exactness concerns	Symmetry obsessions	29	11.1	7	15.9	3	25.0	3	5.9	26	12.4	3.59	2.57	3.67	1.53
Counting compulsion	Counting compulsions	6	2.3	2	4.7	1	7.7	1	2.0	5	2.4	3.67	1.53	10.00	0.0
Any forbidden thought symptoms		84	32.8	17	51.2	7	58.3	13	25.5	71	34.6				
Checking about harm to self/others or body condition	Checking compulsions	36	13.8	10	23.3	5	38.5	8	15.7	28	13.3	3.18	2.31	4.80	1.79
Fear of impulsive, harmful behaviors	Aggression obsessions	12	4.6	4	9.3	3	25.0	1	2.0	11	5.1	5.17	2.62	5.33	3.22
Concern about disease	Somatic obsessions	13	5.0	4	9.1	3	23.1	3	5.9	10	4.7	4.92	2.33	4.67	3.51
Praying or having magical thoughts to prevent harm	Praying or mental compulsions	55	21.1	13	30.2	3	23.1	6	11.8	49	23.3	3.92	2.86	5.33	2.08
Excessive moral concerns	Religious obsessions	15	5.8	7	16.3	2	15.4	2	3.9	13	6.2	3.92	2.86	5.33	2.08
Sexual obsession	Sexual obsessions	12	4.6	4	9.3	0	0.0	2	3.9	10	4.8	4.33	3.42	–	
Any miscellaneous symptoms		45	17.2	9	20.5	5	38.5	6	11.8	39	18.5				
Touch/tap/blink; confession	Miscellaneous compulsions	29	11.1	9	18.2	5	38.5	4	7.8	25	11.8	4.25	3.16	7.20	2.59
Superstitious, colors/ numbers	Superstitious obsessions	27	10.3	4	9.1	2	15.4	6	11.8	21	10.0	4.05	3.24	7.50	3.54
Any cleaning or contamination symptoms		30	11.7	2	23.8	4	33.3	8	15.7	22	10.7				
Fear and disgust of contamination	Contamination obsessions	21	8.1	6	14.0	3	25.0	5	9.8	16	7.7	3.05	2.37	5.67	4.16
Excessive self-cleaning	Cleaning compulsions	17	6.5	8	18.6	3	23.1	4	7.8	13	6.2	4.97	2.95	6.33	2.31
Any of the above		156	61.4	32	78.0	8	72.7	26	51.0	130	64.0				

^a Items are from the Obsessive-Compulsive Checklist Patient Rating Scale, a measure used clinically and in previous investigations of OCD symptom severity (8). This scale is a 17-item questionnaire inquiring about the presence of common obsessions and compulsions. In the present sample, the scale documented adequate internal consistency ($\alpha=0.78$) and good convergent validity with the Florida Obsessive-Compulsive Inventory (FOCI) as well as with the Psychiatric Diagnostic Screening Questionnaire (PDSQ).

^b The PDSQ is a validated measure commonly used in clinical settings for psychiatric symptom screening (6). The number of OCD symptoms endorsed was summed to determine a score between 0 and 7, with a cutoff of 1 indicating the need for further clinical assessment (e.g., a "positive screen").

^c The FOCI comprises 20 "yes" or "no" items and five symptom severity items and is rated on a 5-point Likert scale (7). The FOCI yields two subscales (i.e., symptom presence and symptom severity). A symptom presence is indicated from a checklist score that ranges between 0 and 20, with a score of 20 indicating the greatest number of symptoms. The symptom severity score is calculated by summing the five severity questions. Athletes were considered clinical on the FOCI if the symptom severity score was 8 or higher (unpublished 1994 data from W.K. Goodman).

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Association and Causation in Brain Imaging: The Case of OCD

TO THE EDITOR: In light of the incredible technological advances in brain imaging over the last 25 years, we read with interest the recent international collaborative meta-analysis of brain imaging research on obsessive-compulsive disorder (OCD) by Boedhoe et al. (1). The strikingly small effect sizes (2) for the brain areas found in this body of literature raise a broad theoretical question, namely: What is the minimum effect size at which we can declare imaging results to be substantively and specifically related to putative psychopathological states? Boedhoe et al. focus on increased thalamic volume in an unmedicated pediatric OCD sample, with a small effect size of 0.38, exemplifying a 3.1% difference in volume. This is a correlative finding and is not demonstrably causative. Furthermore, this finding is not specific to OCD. Although the authors assert that their finding of increased thalamic volume may be “an early marker of [OCD],” they also point to the same findings in Tourette’s syndrome and attention deficit hyperactivity disorder. When the small effect size and lack of specificity are considered along with the cross-sectional nature of imaging studies, one recognizes the problems with drawing meaningful conclusions from this literature, such as the authors’ conclusion that their cross-sectional findings are “in line with the developmental nature of OCD and neuroplastic changes during the course of the illness.”

There is currently no agreed-upon standard for declaring brain regions or hypothesized circuits as being related to specific psychiatric conditions. Moreover, there are no standards yet set forth that would lead to the declaration that a brain area or circuit is causal to any psychiatric disorder. It is with great anticipation that such standards be developed. Any standards that are developed would, by necessity, have to reckon with the minimum threshold for implying a role for a brain area involved in psychiatric disorders relative to healthy controls, as well as

a critical value or heuristic for making claims about this role. Ideally, standards would also lay out how investigators may move from correlations to causal mechanisms, such as claims of underlying pathophysiology. It would seem that the need for such standards is now at an urgent level, particularly given the recent initiatives for developing sophisticated models of psychopathology (i.e., the Research Domain Criteria [3]) that strongly emphasize biological mechanisms of psychiatric disorders. Instead, the closest standards presently available are cutoff points for odds ratios for genes in association with psychopathology (4). Based on the findings from Boedhoe et al. (1), it appears that a disorder-specific structural pathophysiology of OCD is far from identified, and the few brain areas identified as different from control subjects have very weak and non-specific association with the condition. At present, there is a poverty of research that evaluates brain structural and functional indices between OCD and clinically relevant controls, and there is no experimental or longitudinal research that identifies causal biological mechanisms of the disorder. Until such evidence is presented, conclusions regarding disorder-specific pathophysiology of brain areas in association with OCD—especially causal conclusions—are unfounded.

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Association and Causation in Brain Imaging in the Case of OCD: Response to McKay et al.

TO THE EDITOR: We thank McKay and colleagues for their comments, in which they expressed their concerns about the minimum effect size at which one may declare imaging results to be substantively, specifically, and causally related to putative psychopathological states. It is certainly important for the field to be aware of the extent of progress