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## The obsessive-compulsive spectrums

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The obsessive-compulsive (OC) spectrum is a fascinating concept that has captured the interest of researchers and clinicians alike. Although it has compelling merits, it is also controversial and bedeviled by many unresolved questions. For example, what disorders should be included in this spectrum? Should the Diagnostic and Statistical Manual of Mental Disorders (DSM) be reorganized to include a section of OC spectrum disorders (OCSDs) that includes obsessive-compulsive disorder (OCD) and putative spectrum disorders? How should we treat these disorders' delusional variants?

This article addresses treatment approaches implied by this spectrum concept and the pros and cons of including this putative grouping of disorders in future editions of DSM. It also addresses two hypothesized spectrums that might be considered "subspectrums" of this OC spectrum. One spectrum, the compulsive/impulsive spectrum, views the OC spectrum along a dimension that ranges from compulsivity to impulsivity. The other is the delusionality spectrum, which is highly relevant to conceptualizations of the OC spectrum and other disorders (eg, the mood disorders). It has received far less attention than the OC spectrum itself or the compulsivity/impulsivity spectrum, however. The delusionality spectrum poses particularly interesting classification dilemmas that will be addressed during the DSM-V process, and it has important and surprising implications for the treatment of OCD and certain OCSDs. Although other OC spectrums and subspectrums have been proposed, such as a "cognitive-motoric" dimension, which is a subspectrum that conceptualizes OCSDs as ranging from primarily obsessional to primarily motoric [1], these spectrums and subspectrums have received less attention than the others and are not discussed in this article.

The following case highlights the clinical relevance of the spectrum concepts on which this article focuses and some of the theoretical and scientific issues they raise.

### Case

Mr. A., a 47-year-old divorced white man, was obsessed with minor acne scars on his face, especially those on the bridge of his nose. Although he looked normal, he believed that the marks made him look like a monster and "as ugly as the Elephant Man." Mr. A. was occasionally able to acknowledge that his skin might look normal and that his view of his appearance might be distorted, but he was usually "100% convinced" that his belief was accurate. In addition to thinking about these perceived flaws for at least 10 hours a day, he performed repetitive behaviors, such as mirror checking and applying makeup to cover the marks. Mr. A. also had time-consuming and distressing obsessions that focused on whether he had placed various objects in exactly the right place, and he spent hours every day rearranging

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them. Mr. A. also had vocal and motor tics that consisted of repetitive hand movements, blinking, and coughing. As a result of all of these symptoms, he was unable to work, was extremely socially isolated, and had attempted suicide more than 20 times.

Mr. A.'s obsessions and compulsive behaviors warrant several diagnoses from different sections of DSM [2]: (1) body dysmorphic disorder (BDD), a somatoform disorder; (2) delusional disorder, a psychotic disorder; (3) OCD, an anxiety disorder; and (4) Tourette's disorder, classified under "disorders usually first diagnosed in infancy, childhood, or adolescence." Does Mr. A. really have four different disorders from four different sections of DSM, or are his obsessions and compulsions symptoms of related disorders? Should they instead be conceptualized as members of the OC spectrum and be grouped together in DSM? When Mr. A. has some insight about his appearance, should he be diagnosed with BDD, and when these beliefs are delusional, should he be diagnosed with delusional disorder? Should BDD and delusional disorder be conceptualized as a single disorder characterized by a spectrum of insight rather than as two separate disorders? What are the treatment implications of these different possibilities? For example, when Mr. A. is delusional, should he be treated with different medications (eg, antipsychotic agents) than when he is not delusional?

## The obsessive-compulsive spectrum

As articulated by Hollander, disorders are posited to belong to the OC spectrum based on their similarities with OCD in various domains [1]. These domains have been proposed to include the following: symptoms (most notably, obsessions and compulsions), sex ratio, age of onset, course of illness, comorbidity (among disorders within and outside of the spectrum), joint familial loading, treatment response, and presumed etiology [3]. There is no clear consensus as to which disorders should be considered a member of, or even a candidate for, the OC spectrum. Disorders commonly suggested to belong to this spectrum are widely scattered throughout DSM and include Tourette's disorder, BDD, hypochondriasis (a somatoform disorder), and trichotillomania (an impulse control disorder) [1]. The eating disorders, autism, and several other impulse control disorders, such as pathologic gambling and kleptomania, are sometimes included. Even broader views of OC spectrum membership have been proposed, which include neurologic disorders, such as Sydenham's chorea and parkinsonism, and psychiatric disorders, such as depersonalization disorder, sexual compulsions and paraphilias, and borderline personality disorder [1,4].

The OC spectrum hypothesis has several important implications for our classification system. First, this hypothesis generally implies that spectrum members should be classified together in DSM—in other words, the above disorders should be moved from their current place in DSM (such as the somatoform, dissociative, or impulse control disorders) and classified together in a new section of OCSDs. Also underlying the spectrum concept is the hypothesis that spectrum disorders are related to one another. The domains noted previously (eg, course of illness, joint familial loading) are implied to be markers of the degree of disorders' relatedness to OCD and one another. Finally, although not always explicitly stated, the OC spectrum hypothesis generally implies that spectrum disorders have a shared pathogenesis (and should be classified together). This view potentially has broader implications for our classification system, in which disorders are currently grouped together largely on the basis of descriptive similarities rather than pathophysiology and etiology. It should be noted that the OC spectrum concept has similarities to some other proposed spectrum concepts, such as the affective spectrum [5] and the schizophrenia spectrum [6], in which group membership moves beyond disorders' descriptive features and is based on the concept that certain disorders have a shared pathogenesis.

## The compulsive/impulsive spectrum

Another spectrum concept relevant to the OC spectrum is the compulsive/impulsive spectrum, which might be considered an OC “subspectrum.” This view proposes that the OC spectrum may be viewed along a dimension that ranges from compulsivity to impulsivity [1,4]. Disorders at the compulsive end of the spectrum, such as BDD, OCD, anorexia, and hypochondriasis, are characterized by high degrees of harm avoidance, risk aversion, resistance, anticipatory anxiety, and lack of gratification [4,7]. Disorders at the impulsive end, such as pathologic gambling and other impulse control disorders, are characterized by low harm avoidance, risk seeking, lack of resistance, little anticipatory anxiety, and gratification [1]. These disorders are associated with pleasure-producing behaviors (although the consequences of such behavior may be painful), whereas ritualistic behaviors in disorders at the compulsive pole are often undertaken in an attempt to reduce anxiety, tension, and the sense of harm or risk [4]. It has been hypothesized that this spectrum may be related to an “affective spectrum” [5], with disorders at the impulsive pole sharing features with bipolar disorder and disorders at the compulsive pole sharing features with unipolar depression [7].

The distinction between the compulsive and impulsive ends of this putative spectrum is not always clear cut, however [1,7]. For example, some disorders may have compulsive and impulsive features (eg, “compulsive” forms of impulse control disorders), and others may be considered to lie between the two poles [4]. The behaviors of patients with pathologic gambling or trichotillomania, for example, may be driven and tension reducing and pleasurable. Hollander and colleagues have argued that despite these complexities, what both ends of the dimension share are repetitive behaviors and impaired inhibition of these behaviors [4].

## Similarities and differences between obsessive-compulsive disorder and spectrum disorders

Evidence supporting similarities and differences between OCD and putative OCSDs—and hence whether disorders should be considered spectrum members—has been reviewed elsewhere [1,4,8]. As noted above, a number of domains have been proposed to guide OC spectrum membership. This article focuses on several domains that might be considered particularly relevant to determining spectrum membership. It also focuses on several disorders that are often proposed to be spectrum members. With the exception of Tourette’s disorder, most of the putative OCSDs have received little investigation, particularly in certain domains, which limits the data discussed in this section and the conclusions that can be drawn from them.

### Symptoms

In some ways, symptoms are the starting point for determining whether disorders should be considered part of the OC spectrum. Most putative OC spectrum disorders (and all of those included in narrower conceptualizations of the disorder) are characterized primarily by prominent recurrent intrusive thoughts or repetitive behaviors—the hallmarks of OCD (Table 1). BDD is perhaps most similar to OCD in this domain in that these patients have unusually prominent obsessions (related to their appearance) and repetitive behaviors, some of which are nearly indistinguishable from those in OCD (eg, reassurance seeking) [9]. BDD and OCD symptoms also are sometimes inextricably intertwined, which makes it difficult to determine where one disorder begins and the other leaves off. This difficulty is illustrated by the case of a young man with an unusually full head of hair who was obsessed that he was going bald and would not touch his hair because he believed that germs from his hands would make more hair fall out. He engaged in classic BDD-related behaviors, such as excessive mirror checking and grooming, and classic OCD compulsions, such as excessive hand washing. BDD and OCD behaviors are similar in terms of how much time they consume, the degree of distress and

interference they cause, and the degree to which they can be resisted and controlled [10]. BDD is characterized by poorer insight than OCD [11], however, and the disorders seem to have somewhat different personality correlates [12]. Clinical observations suggest that BDD is more often characterized by rejection sensitivity and beliefs of being defective and unlovable, whereas OCD is more often characterized by overresponsibility and perfectionism.

Although Tourette's disorder has more phenomenologic similarities with OCD than do some of the other putative OCSDs, it is not characterized by prominent obsessions. Some patients with hypochondriasis are similar to persons with OCD in that they are preoccupied with illness and engage in repetitive behaviors, such as checking [13,14]. It may be difficult to differentiate somatic OCD obsessions from this form of hypochondriasis; however, it also has been proposed that some patients have "depressive hypochondria," a form of the illness less similar to OCD [15]. Other differences are that hypochondriasis, by definition, is characterized by somatic sensations and perhaps poorer insight than OCD [15], although research on the latter issue is limited. Trichotillomania, like Tourette's disorder, is not characterized by prominent cognitions, and hair pulling is often noted to be pleasurable, unlike OCD compulsions [16] (Table 1).

### **Comorbidity with obsessive-compulsive disorder**

The comorbidity domain gives relatively strong support to inclusion of BDD and Tourette's disorder in the OC spectrum and weaker support to inclusion of hypochondriasis and trichotillomania. More than 20% of patients with Tourette's disorder have lifetime OCD (and more than 40% report a history of subsyndromal OC symptoms) [17]; other studies have reported that 28% to 62% of Tourette's patients have comorbid OCD [18–20]. Approximately 30% of patients with BDD have lifetime OCD [21]. On the one hand, these high rates suggest that these disorders are related or are even symptoms of the same underlying disorder. On the other hand, BDD is also highly comorbid with major depression and social phobia, which suggests that BDD may be related to these disorders [9,21]. Rates of comorbidity with OCD are generally lower in trichotillomania, with approximately 15% of patients having OCD [22,23]. They are also relatively low in hypochondriasis, with one study finding that only 8% of patients had OCD and that other disorders co-occurred more frequently [24]. Assessment of comorbidity is complicated, however, by findings that comorbidity patterns may be different for OCD characterized by an episodic course than for OCD characterized by a chronic course [25]; comorbidity studies of putative OCSDs have not differentiated episodic from chronic OCD.

### **Familial relationship**

Several studies strongly support a familial, genetic relationship between Tourette's disorder and OCD [26]. Relevant studies of other putative OCSDs are limited. A controlled family study by Bienvenue et al examined the familial relationship between OCD and a range of OCSDs, however, which was the first study to do so [27]. This study had several strengths, including its rigorous, blinded, and controlled methodology. It found that BDD and either BDD or hypochondriasis occurred significantly more frequently in first-degree relatives of OCD probands than control probands (4% versus 1% for BDD). Other putative spectrum disorders, including hypochondriasis alone, eating disorders, and impulse control disorders, did not occur more frequently, however, although the prevalence of some disorders was low, which limited the power to detect differences between case and control relatives. These data suggest that a narrower conceptualization of the OC spectrum may be more valid than a broader one and that BDD in particular can be considered part of a familial OCD spectrum. Although this study gave mixed support to a familial relationship between OCD and hypochondriasis, another study found that rates of hypochondriasis were not increased in first-degree relatives of OCD

probands and that hypochondriasis was associated with somatization disorder [28]. Whereas the Bienvenue study did not support a familial relationship between OCD and trichotillomania, other studies have found increased rates of OCD in relatives of patients with trichotillomania [29,30].

### Treatment response

Disorders are also posited to belong to the OC spectrum on the basis of selective response to serotonin reuptake inhibitors (SRIs) [1]. Limited data on treatment response most strongly support the inclusion of BDD in the OC spectrum. In a double-blind, cross-over study ( $n = 29$  randomized patients), clomipramine was superior to desipramine, which suggests preferential response to SRIs [31]. Retrospective data suggest that BDD has a higher response rate to SRI treatment than to various other medications, including other antidepressants and antipsychotic agents [21,32]. The efficacy of SRIs for BDD is further supported by systematic open-label trials [33] and a placebo-controlled study ( $n = 67$  randomized patients) in which fluoxetine was more effective than placebo for BDD [34].

Tourette's disorder's well-established response to antipsychotic agents [35], combined with more preliminary data that suggest potential efficacy for medications such as clonidine [36], is somewhat inconsistent with its classification as an OCSD. Although fluoxetine has been shown to be effective for hypochondriasis [37], an earlier retrospective study found that non-SRI antidepressants and electroconvulsive therapy (ECT) also were effective [38,39]. Studies of trichotillomania's response to SRIs have yielded inconsistent findings. Although a blinded, cross-over trial found that clomipramine was more effective than desipramine [40], fluoxetine was not more effective than placebo in two studies [41,42]. Clinical impressions suggest that trichotillomania's initial response to an SRI is often not maintained with continued treatment, unlike in OCD [43]. In a small, unpublished study, naltrexone was superior to placebo for trichotillomania [44], which suggests that this disorder may not respond selectively to SRIs.

Fluvoxamine has been shown to be effective for pathologic gambling in a single-blind [45] and a double-blind [46] cross-over trial; in a double-blind study, paroxetine was more effective than placebo on one of three outcome measures [47]. Of interest, naltrexone has been shown to be effective for this disorder [48,49], which raises the question of whether the impulse control disorders may respond to opioid antagonists rather than—or in addition to—SRIs. Whereas a substantial body of data indicates that bulimia nervosa responds to SRIs, it also responds to a wide range of other anti-depressants [50]. In contrast, anorexia nervosa responds poorly to most pharmacotherapies; although some preliminary data suggest that fluoxetine may prevent relapse in weight-restored patients [50], the robust response to SRIs that may be seen in OCD generally does not occur in anorexia.

The treatment response of most of the OCSDs has been studied insufficiently. Available data suggest that BDD responds preferentially to SRIs, whereas this is less clearly the case, or is not true, for some other OCSDs. There are notable hazards, however, of using treatment response as the primary determinant of OC spectrum membership. This hazard is illustrated by the response of Tourette's disorder (which is almost certainly related to OCD) to neuroleptics, the preferential response of disorders such as premenstrual dysphoric disorder to SRIs [51], and the effectiveness of a medication such as propranolol for a wide range of unrelated conditions, such as hypertension and specific social phobia.

### Neurobiology

Pathogenesis is arguably the most valid indicator of whether disorders are related [52,53]; in nonpsychiatric medicine, syndrome-based classification systems largely have been replaced

by systems based on pathogenesis (eg, infectious organisms) as they have been identified [54]. This is also the domain with the fewest data, however. The pathogenesis of mental disorders is complex, with genetic/neurobiologic and environmental/psychological determinants. Advances in understanding this aspect of OCD have been made in the neurobiologic realm. Interpreting neurobiologic findings with respect to the OC spectrum concept is problematic, however, because of the paucity of research on most of the putative OCSDs (except for Tourette's disorder) and inconsistencies in the findings.

A growing body of research has documented structural abnormalities in the caudate nucleus in OCD (although findings are somewhat inconsistent) and increased activity in the orbitofrontal cortex and caudate nucleus [55]. In contrast, Tourette's disorder and trichotillomania have been associated with structural changes in the putamen and globus pallidus [55]. These findings seem somewhat disparate but can be accommodated by overarching theories of corticostriatal circuitry dysfunction [56]. Neurochemical and neuroendocrine findings in OCD have been weaker and more inconsistent [57] and generally are understudied in other OC spectrum conditions, with some notable exceptions [58]. Whereas research on the neurobiology of the OCSDs is increasing [59], until more systematic studies are conducted, neurobiologic support for membership in the OC spectrum remains qualified.

### **Promises and pitfalls of the obsessive-compulsive spectrum hypothesis**

The OC spectrum hypothesis offers promises and pitfalls. It has several advantages, including linkage of apparently related disorders that are currently scattered around the nomenclature. This advantage is appealing from a theoretical and scientific perspective and from a clinical perspective. For example, when evaluating a patient with one OCSD, clinicians might more carefully assess patients for comorbid OCSDs or a family history of OCSDs. The spectrum hypothesis also has potentially valuable treatment implications, which suggests a possible role for SRIs. Nonetheless, the pharmacologic response of Tourette's disorder and trichotillomania illustrates that the treatment response of each OCSD requires investigation because these disorders cannot be assumed to be SRI responsive. Another advantage of the OC spectrum hypothesis is that it moves the descriptively based diagnostic system toward one based on presumed pathogenesis, in which meaningful relationships among disorders are reflected by their organization.

The OC spectrum concept has important limitations, however. Some of these disorders have received little investigation, even at the syndromal level. Data from other domains (eg, family studies, treatment studies, follow-up studies) also are limited for many of the disorders. Few studies have examined the relationship of the OCSDs to OCD or to one another in direct comparison studies. Some of the putative spectrum disorders also have notable similarities with disorders excluded from the spectrum. For example, family history and comorbidity studies support a relationship between hypochondriasis and somatization disorder [28,60], and BDD's symptoms and comorbidity suggest that this disorder may be related to social phobia or depression [9]. Perhaps most important, many OCSDs have received little neurobiologic investigation, the approach with the greatest potential for resolving the question of which disorders belong in the spectrum.

There are also drawbacks to the OC spectrum concept itself. Although the previously mentioned conceptualization is a useful starting point, it lacks precision, is poorly operationalized, and does not identify criteria for membership [53]. To be included in the spectrum, for example, how similar must a disorder be to OCD in each domain and in how many domains must similarities exist? It could be argued that the lack of operationalized criteria has led to overinclusiveness, with some putative OC spectrum disorders (eg, borderline

personality disorder) seeming strikingly dissimilar from OCD [61]. An additional problem is that OCD itself is likely to be heterogeneous, comprising a number of entities with a somewhat distinct pathogenesis [61]. For example, pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections [62] might represent an OCD subtype with a pathophysiology and etiology that differ from other forms of OCD. BDD and hypochondriasis may be more similar to a putative “harm avoidance” OCD subtype, whereas Tourette’s disorder and trichotillomania may be more similar to a putative “incompleteness” OCD subtype [63]. The OCSDs are also likely heterogeneous disorders. One clinical variant of hypochondriasis, for example, seems more similar to somatization disorder or depressive disorders than to OCD [24,28,60,64]. Whereas some forms of BDD seem to overlap with OCD, other forms seem to overlap with eating disorders. The heterogeneity problem does not invalidate the spectrum hypothesis but does complicate it.

In summary, the OC spectrum hypothesis has considerable face validity and heuristic and practical clinical utility (eg, treatment implications). Despite these advantages over the current classification system, empirical support for this hypothesis remains limited. Because of this paucity of research, especially on pathogenesis, it would be premature to include this grouping of disorders in DSM currently. Additional research will greatly increase our knowledge of these disorders, and it is likely that future versions of DSM will contain a better-defined category of OCSDs that includes some, but not all, of the putative OCSDs.

In the meantime, it seems best to avoid prematurely combining (or “lumping”) the OCSDs (eg, considering hypochondriasis a symptom of OCD rather than a separate disorder). Future research may demonstrate that some of the putative OCSDs are actually symptoms of another disorder, such as OCD, rather than separate disorders. Until more is known about these disorders’ pathogenesis, however, it is better to split (ie, describe a larger number of categories) than lump so that the disorders are studied and important differences between them, if they exist, are not missed [53]. The history of psychiatric classification is replete with examples of diagnostic and treatment errors attributable to premature lumping (eg, combining schizophrenia and manic depressive illness). Studies of homogeneous populations also have greater statistical power than those of heterogeneous populations. Once we better understand these disorders’ pathogenesis, we will be able to lump them, if indicated, in an informed and valid way.

## **Delusional and the obsessive-compulsive spectrum**

The final spectrum to be addressed is the delusional spectrum, which pertains to OCSDs with a cognitive component. This spectrum may be considered a “subspectrum” of the OC spectrum, but it also pertains to disorders other than the OCSDs, such as mood disorders. This spectrum concept hypothesizes that delusional and nondelusional variants of OCSDs are the same, rather than different, disorders, and it views delusional (insight) as a dimensional rather than a categorical construct. Like the OC spectrum itself, it is relevant to theoretical formulations of our classification system and clinical practice: If delusional and nondelusional forms of OCSDs are actually the same disorder, for example, it would follow that we would treat them similarly.

### **Inconsistencies in the classification of delusional versus nondelusional variants of obsessive-compulsive spectrum disorders**

Several putative OCSDs—BDD and hypochondriasis—have delusional and nondelusional variants, which are classified as separate disorders in DSM-IV. Whereas nondelusional BDD is classified as a somatoform disorder, delusional BDD is classified as a psychotic disorder, a type of delusional disorder, somatic type. This means that Mr. A.’s preoccupation with his skin would sometimes be diagnosed as a somatoform disorder and sometimes be diagnosed as a

psychotic disorder. Delusional hypochondriasis is classified as delusional disorder, somatic type, and delusional OCD may be classified as either psychotic disorder, not otherwise specified, or delusional disorder, unspecified type.

In some respects, DSM-IV classifies these disorders inconsistently [53] (Table 2). One inconsistency is that delusional OCD, unlike delusional BDD or hypochondriasis, may be classified as either a type of delusional disorder or psychotic disorder, not otherwise specified. Another inconsistency is that BDD and OCD may be double-coded with their delusional disorder variant (ie, patients with delusional symptoms may receive both diagnoses), which reflects the possibility that their delusional and nondelusional forms constitute the same disorder; however, this is not noted to be an option for hypochondriasis. (An additional problem is that it is unclear whether delusional and nondelusional BDD or OCD should be double-coded; the “may” is ambiguous.) Yet another inconsistency is that OCD and hypochondriasis have a “poor insight” specifier but BDD does not, although BDD is more often characterized by poor insight than OCD [11]. The hypochondriasis criteria set further differentiates the disorder’s delusional and nondelusional forms with criterion C, which specifies that “the belief in criterion A is not of delusional intensity”; this is not done, however, for OCD or BDD. DSM is silent on insight in anorexia nervosa, although clinicians would readily recognize that insight is often poor and that some patients are delusional.

The mood disorders are handled differently (Table 2). The psychotic variants of major depression or bipolar disorder are not classified as separate disorders in the psychosis section but are classified as a subtype of the mood disorder (eg, major depression with psychotic features), although questions were raised during the DSM-IV process of whether psychotic depression should be classified separately from nonpsychotic depression [65].

### **Should delusional and nondelusional forms of obsessive-compulsive spectrum disorders be combined?**

Should the delusional and nondelusional variants of these disorders be combined to constitute a single disorder that spans a spectrum of insight, as is done for the mood disorders [66]? Is delusional (insight) a dimensional construct rather than a categorical one [67]?

Available data on OCD itself suggest that the answers to these questions may be “yes.” Patients with OCD have been observed to “...present a continuum of strength of belief in the senselessness of their obsessions and compulsions” [68]. Insight has been noted to vary on a continuum that ranges from good insight to delusional thinking [69–71], although more recent empirical data indicate that insight may be poor in OCD but is rarely absent [11]. This dimensional view of insight is supported by clinical observations that it can be difficult to distinguish between different levels of insight in OCD and that insight may alternate and depend on the situation [68]. Supporting similarities between good-insight and poor-insight OCD, a study that compared OCD patients with and without insight found that the two groups were generally similar in terms of demographic and clinical characteristics [69]. Preliminary data also suggest that good-insight and poor-insight OCD respond similarly to pharmacotherapy (both respond to SRIs [72]), and many studies suggest that patients with poor insight respond as well to behavior therapy as patients with good insight [73–75].

The answers to these questions also seem to be “yes” for BDD, the only OCSD for which data on these questions are available. Although its delusional and nondelusional variants are classified separately, it was historically noted that BDD’s precursor, dysmorphophobia, encompassed nonpsychotic (or neurotic) and psychotic thinking [32]. Consistent with this perspective, available data indicate that BDD and its delusional disorder variant do not differ significantly in terms of demographics, phenomenology, course, associated psychopathology,

family history, or treatment response [21]. The delusional variant seems to be a more severe form of the disorder, however, and is characterized by greater functional impairment [21], higher levels of perceived stress [76], and poorer quality of life [77]. Although data are limited—the greatest limitation being lack of data on pathogenesis—they suggest that these BDD variants constitute the same disorder, with delusionality (insight) occurring on a continuum. Further supporting the continuum hypothesis, changes in insight in BDD may occur in response to treatment [78]. It seems highly unlikely that a patient such as Mr. A. would have one disorder at one moment and another disorder at another. The more parsimonious explanation is that he has a single disorder characterized by a spectrum of insight.

A lack of reliable and valid instruments to assess delusionality has limited research on this spectrum concept. Instruments used in schizophrenia are generally not suitable for OCD or the OCSDs. Also compromising research in this area is the fact that delusions and delusional thinking are complex constructs. Delusions are multidimensional [79], and even their definition is a subject of some controversy [80]. Because a reliable and valid measure of delusionality in OCSDs is now available (the Brown Assessment of Beliefs Scale [81]), research can be done to clarify the relationship between delusional and nondelusional variants of disorders.

It seems likely that such research will show that BDD, OCD, hypochondriasis, and anorexia nervosa are characterized by a spectrum of insight and that the subtype model—with and without psychotic features—used to classify mood disorders will prove more valid and clinically useful than the current schema. The subtype model that was proposed for OCD in DSM-IV—“with insight,” “with overvalued ideas,” and “with delusional thinking”—is even more appealing because it allows for more gradations in insight and classifies OCD’s delusional variant with its nondelusional variant. (This model was only partially adopted in DSM-IV, because OCD has a poor-insight specifier, but its delusional variant remains separately classified in the psychosis section.) Whatever model is adopted, it should reflect available empirical evidence to the fullest extent possible and should aim for consistency across disorders, assuming the evidence supports consistency.

### **Treatment response of delusional and poor insight variants of obsessive-compulsive spectrum disorders**

Particularly intriguing are findings that suggest that delusional and poor insight variants of OCD and OCSDs may respond to SRIs. This is counterintuitive, given that psychosis is usually treated with antipsychotic agents. Despite the fact that OCD has a poor insight specifier in DSM-IV, only one study of this topic has been conducted. In this open-label study of sertraline, in which patients were assessed with the Brown Assessment of Beliefs Scale ( $n = 74$ ), OCD symptoms characterized by poor insight were as likely to improve as those characterized by good insight [72]. Insight also significantly improved with treatment, such that patients were better able to recognize the senselessness of their OCD-related beliefs.

The only OCSD for which this issue has been investigated is BDD. Observations from clinical series that suggested that delusional BDD responded to SRIs but not to antipsychotic agents [21,32] spurred more systematic studies of this issue. In an open-label fluvoxamine study ( $n = 30$ ), which used the Brown Assessment of Beliefs Scale, BDD symptoms were as likely to improve in delusional patients as in nondelusional patients [78]. Fluvoxamine responders also had improvement in insight, developing more accurate beliefs about their appearance. In the previously described desipramine/clomipramine cross-over study, clomipramine was more effective than desipramine regardless of whether patients had insight or held their dysmorphic misperception with delusional intensity [31]. Of interest, clomipramine was even more effective for delusional patients than for non-delusional patients. Insight also improved with clomipramine but not with desipramine. In the only placebo-controlled study of BDD, which

used the Brown Assessment of Beliefs Scale, BDD symptoms were as likely to respond to fluoxetine in delusional patients as in nondelusional patients (50% versus 55%, respectively) [34]. Of interest, no delusional patients responded to placebo, and for this reason delusionality was the only predictor of treatment response. In this study, insight improved more in treatment responders than in nonresponders.

These intriguing findings suggest that SRIs are effective for delusional BDD and poor-insight OCD and that insight in these disorders may improve with SRI treatment. A further implication of these data is that certain types of psychosis may respond to SRIs alone. It seems likely, however, that psychosis is a heterogeneous construct, and that although “psychotic” OCSDs might respond to SRIs alone, it is unlikely to be the case for psychotic mood disorders [82] and is not the case for certain other psychotic disorders, such as schizophrenia. The treatment response of delusionality in mood disorders and the OCSDs has received surprisingly little investigation and warrants further study using reliable and valid measures of delusionality. Research is needed not only on whether the delusional and poor-insight variants of these disorders respond to SRIs but also on whether antipsychotic augmentation of SRIs is more effective for these patients than for patients with good insight.

### Where next?

More research is needed to answer the questions posed previously and resolve these spectrum-related controversies. Most fundamentally, the OCSD phenotypes themselves need more investigation, which is particularly true for certain disorders, such as kleptomania and the delusional variants of OCSDs. Data from other domains are also needed to determine which disorders should be included in the spectrum; Robin’s and Guze’s criteria remain relevant currently [83]. Perhaps most important, there is a critical need for data on these disorders’ etiology and pathophysiology, garnered from imaging, genetics, and neurochemistry studies. Symptoms do not necessarily correspond to etiology, and phenotypic homogeneity does not guarantee biologic homogeneity. Neurobiologic data will help validate the boundaries of the putative OCSDs and elucidate which disorders are truly spectrum members. An irony worth noting, however, is that valid data on pathogenesis can be obtained only by using accurate, valid, and adequately homogeneous clinical phenotypes [84]. Finally, the dimensional approach to classification is potentially powerful, and it is possible that our future classification system will include dimensions in addition to, or instead of, categories, such as a compulsive/impulsive spectrum or a delusionality spectrum. Future studies relevant to classification, including genetic studies, should incorporate dimensional measures [84–87]. It is worth incorporating measures of compulsivity, impulsivity, harm avoidance, insight, and other potentially relevant dimensions into future studies of OCSDs.

A major challenge for the field is deciding how much data are needed before adding a section of OCSDs to DSM or before combining delusional and nondelusional variants of disorders. What criteria will be used to determine how similar two disorders (eg, hypochondriasis and OCD) or two forms of disorders (eg, delusional and nondelusional BDD) should be before deeming them the same or related disorders? How many imaging or genetics studies—and how many replication studies—are needed to make such changes? How much data are needed on environmental determinants of disorders? If DSM is reorganized to reflect pathogenesis, as implied by the OC spectrum hypothesis, this process will be complicated greatly by the likelihood that psychiatric disorders are complex, involving multiple susceptibility genes of small effect combined with multiple environmental risk factors [85,88–91]. Whether and how to incorporate these types of data into DSM will be the greatest challenge faced by future DSM task forces. This challenge will be particularly daunting during the development of the next

few versions of DSM, because these manuals will take shape during decades when knowledge of psychopathology and pathogenesis will take a quantum leap forward.

## Summary

Because of the paucity of research on the OCSDs, it seems premature to cluster these putative disorders together in DSM, to combine delusional and nondelusional variants of OCSDs, or to classify OCSDs dimensionally. Further investigation of the OC spectrums is clearly needed. These constructs are powerful and useful heuristics with potential validity and clinical utility. The putative OC spectrum and its subspectrums have some apparent advantages over current conceptualizations of these disorders. They may prove more consistent with empirical evidence and ultimately may be shown to better reflect these disorders' pathogenesis. Importantly, they also may be more useful and valid guides for clinical practice.

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**Table 1**  
 Similarities between obsessive-compulsive disorder and selected obsessive-compulsive spectrum disorders

Domain	Body dysmorphic disorder	Tourette's disorder	Hypochondriasis	Trichotillomania
Symptoms	+++	++	++	++
Comorbidity with OCD	+++	+++	+	+
Familial relationship	++	+++	+	+
Treatment response	++	0	+	+

**Table 2**  
Classification of delusional and nondelusional forms of disorders in DSM-IV

Disorder	Delusional and nondelusional forms classified together	Separate delusional disorder variant	Psychotic disorder NOS	Double coded	Poor insight specifier	Specification re: i
Body dysmorphic disorder		X		X		
OCD		X	X	X	X	
Hypochondriasis		X			X	
Anorexia nervosa						X
Psychotic mood disorder	X					