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Obsessive–compulsive spectrum of disorders: a defensible construct?

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Abstract

Objective— To explore critically whether there is a robust basis for the concept of an obsessive–compulsive (OC) spectrum of disorders, and if so, which disorders should be included.

Method— Selective literature review concentrating on three proposed members of the OC spectrum, namely body dysmorphic disorder, hypochondriasis and trichotillomania.

Results— Obsessive–compulsive disorder (OCD) itself is a heterogeneous condition or group of conditions, and this needs to be appreciated in any articulation of a ‘spectrum’ of OC disorders. The basis for ‘membership’ of the spectrum is inconsistent and varied, with varying level of support for inclusion in the putative spectrum.

Conclusion— A more fruitful approach may be to consider *behaviours* and *dimensions* in OCD and OC spectrum disorders, and that this should be encompassed in further developments of the OC spectrum model.

Keywords

body dysmorphic disorder; hypochondriasis; obsessive–compulsive disorder; obsessive–compulsive spectrum; trichotillomania

Until fairly recently, obsessive–compulsive disorder (OCD) was considered rare, with a prevalence in a UK study of one case ‘warranting treatment’ from a general population sample of 310 individuals [1]. The much larger epidemiological catchment area (ECA) study, conducted in five sites across the US, found a lifetime prevalence range of 1.9–3.2% across the study sites [2], indicating that OCD was 50–100 times more common than had been previously believed [2,3]. Several subsequent studies in the US and other countries have supported the ECA’s findings [4–8].

The renewed interest in OCD has led researchers to ‘drill down’ in an attempt to define its subtypes and explore other psychiatric and neuropsychiatric disorders that might have clinical and/or aetiopathological links with OCD. Disorders that are posited to be linked to OCD, based on their similarities with OCD in a variety of domains, are referred to as ‘OC spectrum disorders’ [9]. In this paper, we first provide a brief overview of potential OCD subtypes, as an understanding of OCD’s heterogeneity informs conceptualizations of the OC spectrum. We then discuss the concept of the OC spectrum as well as three disorders hypothesized to be spectrum members, exploring whether their inclusion in this spectrum is justified. These

disorders are body dysmorphic disorder (BDD), which may prove to be one of the disorders most closely related to OCD; hypochondriasis, which appears to be a particularly heterogeneous disorder, with one subtype probably related to OCD and other subtype(s) more closely related to disorders outside the OC spectrum; and trichotillomania, an impulse control disorder for which there are conflicting data regarding its relationship to OCD.

OCD subtyping

Symptom-based typologies

There have been various attempts to subtype OCD, most of which have focused on the disorder's clinical features [10]. Recent factor analytic studies [11,12] of obsessions and compulsions in OCD tend to show a preferred four-factor model, encompassing:

- Aggressive, sexual, and religious obsessions, and checking compulsions;
- Symmetry and ordering obsessions and compulsions;
- Contamination obsessions and cleaning compulsions;
- Hoarding obsessions and compulsions.

Subtypologies based on clinical symptomatology hold more than academic interest, in that they have some utility in choosing treatment. For example, washing and checking rituals are fairly readily addressed by exposure/response prevention paradigms, but this technique is far more difficult to apply if the patient does not have overt rituals (e.g. only mental rituals or obsessional slowness). Similarly, hoarding is notoriously difficult to treat by either psychological or pharmacological means [13]. Patients with a putative OCD subtype associated with tics may benefit from addition of an antipsychotic to a selective serotonin re-uptake inhibitor (SSRI) [14].

Aetiological typologies

In aetiological terms, the description of cases of OCD developing after encephalitis lethargica and brain injury have reinforced, along with modern neuroimaging studies, the importance of the brain and brain dysfunction in OCD (previously considered a 'neurotic' disorder). The description of children who manifest OCD after exposure to Group A beta-hemolytic streptococcus infection, a putative OCD subtype known as PANDAS (pervasive neuropsychiatric disorders associated with streptococcus infections), has generated interest in not only mechanisms (presumably autoimmune) but also novel treatments such as plasmaphoresis [15].

Further emphasizing the importance of understanding brain dysfunction in OCD, some authors have extrapolated from epidemiological and neurological studies to suggest that there is a 'neurodevelopmental' subtype of OCD [16]. This putative subtype is a severe male-predominant illness with an onset in the teens or early 20s, with patients exhibiting motor tics, soft neurological signs, and poor performance on neuropsychological tests of visuospatial functioning. This typology has congruence with neurodevelopmental models proposed for schizophrenia [17] and has the potential to allow an integration of clinical findings with structural and functional neuroimaging in OCD [18].

Thus, OCD can increasingly be seen as a heterogeneous condition, which should be kept in mind when attempting to expand the OC concept to a broader spectrum of disorders. It is this proposed spectrum to which we now turn.

The OC spectrum

Disorders have been hypothesized to belong to the OC spectrum based on their similarities with OCD in a variety of domains, such as symptoms, demographic features, course of illness, comorbidity, treatment response, joint familial loading and presumed aetiology [9]. The symptom domain (i.e. the presence of obsessions and/or repetitive behaviours) is the usual starting point for determining whether a given disorder is a spectrum candidate. Obsessive–compulsive symptoms can be found in a number of disorders other than OCD, such as Tourette’s disorder, BDD, hypochondriasis and trichotillomania—disorders often hypothesized to belong to the OC spectrum [19]. The eating disorders, autism, pathological gambling, kleptomania, depersonalization disorder, sexual compulsions and paraphilias are sometimes also included in the OC spectrum, as are neurological disorders, such as Sydenham’s chorea and parkinsonism [20,21]. These disorders have been usefully grouped by Hollander [22] as follows:

1. Disorders associated with *bodily preoccupation*, including BDD, anorexia nervosa and hypochondriasis;
2. *Neurological disorders*, including Tourette’s syndrome and autism;
3. *Impulse control disorders*, including pathological gambling, kleptomania and trichotillomania.

Although symptomatology is a useful starting point for scientific inquiry regarding whether disorders are related, disorders should not be grouped together and considered related to one another on the basis of shared symptomatology alone. Indeed, the brain has a fairly limited repertoire in terms of the symptoms it produces. The fact that positive psychotic symptoms, for example, occur in schizophrenia, temporal lobe epilepsy, cannabis intoxication, borderline personality disorder and Huntington’s disease does not imply that these disorders should be grouped together or considered related disorders. It is critically important that domains other than symptomatology be examined for evidence of similarities with OCD.

A number of authors [23,24] have proposed that aetiology and pathogenesis be considered the ‘gold standard’ for determining whether disorders are related, and, in particular, whether they are related to OCD and therefore bona fide members of the OC spectrum. Although rapid gains are being made in understanding the pathogenesis of psychiatric disorders, our field is still very far from understanding the complex neurobiological and environmental pathogenetic pathways to these disorders. For this reason, and because research on most of the putative OC spectrum disorders is still at a very early stage, there is no clear consensus as to which disorders should be considered OC spectrum members. For the time being, we must rely on less than perfect clues from other domains, such as symptoms, demographic features, course of illness and treatment response, to suggest whether disorders are related to OCD. In the sections below, we will examine these domains for three OC spectrum candidates (BDD, hypochondriasis and trichotillomania). Because of space constraints, we have limited our discussion to these domains and disorders, which usefully illustrate some of the strengths and limitations of the OC spectrum hypothesis.

Symptomatology

Like OCD, BDD is characterized by intrusive preoccupations (obsessions) and repetitive, ritualized behaviours [25]. In BDD, the preoccupations focus on a belief that some aspect, or aspects, of one’s body is malformed or misshapen, when in fact the ‘deformity’ is minimal or non-existent. These thoughts have many of the hallmarks of OCD obsessions, being recognized as one’s own thoughts, being unpleasant, and causing considerable distress. Having said this, some authors consider BDD preoccupations to be ‘phenomenologically quite distinct’ from

the 'ego-dystonic intrusive and unpleasant thought or image in OCD' [26, p.247]. Also, insight in BDD has been shown to be poorer than in OCD—that is, individuals with BDD have greater conviction that the belief underlying the obsessional thinking is accurate, and a higher percentage of BDD patients than OCD patients are delusional [27,28]. Furthermore, BDD beliefs relate primarily to the self and often involve themes of shame, personal defectiveness and inferiority (similar to social phobia), whereas OCD beliefs often relate to some potential harm befalling others through some action or neglect by the sufferer and involve a theme of over-responsibility or perfectionism.

Similar to OCD patients, virtually all patients with BDD engage in repetitive behaviours, such as mirror checking and reassurance seeking, to try to diminish the distress associated with their preoccupations [28]. These activities can have a very ritualized form—for example, grooming routines may have to follow a certain sequence and repeated if the sequence is interrupted [29]. Clinical observations suggest, however, that BDD rituals are less likely than OCD rituals to diminish the anxiety caused by obsessional thinking and may even increase distress [29, 30].

Symptoms of hypochondriasis can be so similar to somatic OCD obsessions (those focusing on illness fears) that these disorders can be difficult to distinguish. In addition, some patients with hypochondriasis engage in repetitive OCD-like behaviours such as reassurance seeking and checking for signs of illness [31,32]. However, these disorders have some differences, including the presence of somatic and visceral sensations in hypochondriasis, and the frequent presence of other classic OCD obsessions unrelated to illness concerns in patients with OCD. Another hypothesized difference is that patients with OCD fear getting an illness, whereas those with hypochondriasis fear having one [33].

Trichotillomania, an impulse control disorder characterized by repetitive hair pulling that results in noticeable hair loss, has been noted to have both similarities with and differences from OCD. Similarities include the repetitive and often ritualized approach to hair pulling, which may involve a specific sequence including disposing of the plucked hair in a certain way (e.g. by touching the lips and then ingesting the hair). However, there are a number of differences between these disorders [34], notably related to the sequence of action, which characteristically begins with an urge to pluck, a particular sensation associated with the plucking, and relief of tension associated with hair pulling in trichotillomania. And unlike OCD, trichotillomania is not characterized by prominent cognitions. Furthermore, hair pulling is gratifying in trichotillomania, whereas rituals associated with OCD are generally not gratifying (although they do reduce anxiety, at least for a short period).

Demographic features and course of illness

Although OCD's epidemiology and course of illness have been extensively studied, there are fewer data for BDD, hypochondriasis and trichotillomania. BDD and OCD both have a roughly equal sex ratio [35], with a somewhat earlier onset of OCD in men, which has not been shown for BDD [36]. Trichotillomania affects primarily women [34]; data on hypochondriasis are inconsistent [37]. The mean age of onset for OCD is in the early- to mid-20s [38]; hypochondriasis also most commonly begins in early adulthood, whereas BDD and trichotillomania most often begin during the early to middle teenage years [28]. One demographic difference between BDD and OCD is that a higher percentage of BDD patients have never been married [35]. When untreated, both OCD and BDD tend to be chronic illnesses that usually persist, although data on BDD's course are retrospective [36,39]. Hypochondriasis, too, usually has a fairly chronic course [40,41], although a more transient form also exists [32]. The longitudinal course of trichotillomania is less well described, and appears fairly heterogeneous, with some patients experiencing spontaneous waning of symptoms, and some having persistent severe symptoms [34].

Treatment response

The established treatments for OCD are SSRIs and exposure and response prevention [42–45]. The selective response to serotonergic agents in OCD and the proposed OC spectrum disorders has been one of the major supportive pillars of the spectrum concept [46]. BDD, like OCD, responds to SSRIs [47] and does not appear to respond to other medications when used as single agents [25,28,48]; also, like OCD, there is usually a fairly long delay in SSRI response (usually 6–9 weeks) and an apparent requirement for relatively high doses [49].

Yet the picture is not a simple one, and some of the spectrum disorders do not appear to respond preferentially to SSRIs. Although SSRIs were effective for hypochondriasis in open-label studies [50,51], an earlier retrospective study found that non-SSRI antidepressants and electroconvulsive therapy are also effective for this disorder [52,53]. In trichotillomania, a blinded cross-over trial found that clomipramine was more effective than desipramine [54], but two other studies found that fluoxetine was not more effective than placebo [55,56]. And in a small unpublished study, naltrexone was superior to placebo for this disorder [57]. Furthermore, unlike OCD, the disorders of impulse control appear to often have a rapid response that attenuates with time [58].

Turning to psychological treatments, not all of the proposed spectrum disorders respond to the same type of intervention. Thus, while OCD has been well documented to respond to exposure and response prevention alone [42], and the cognitive component of cognitive behaviour therapy is not usually necessary for effective treatment, most psychological interventions for BDD include a component addressing underlying cognitive distortions [30] (although it is unknown whether this component is a necessary aspect of the treatment). Having said this, some patients with OCD do seem to benefit from the addition of a cognitive component to treatment, while some clinicians have successfully treated BDD with exposure and response prevention alone.

Numerous studies indicate that cognitive and behavioural strategies (such as exposure and response prevention) may both be efficacious for hypochondriasis [53]. However, some early studies suggested that hypochondriasis may also respond to non-CBT psychotherapy [59], which is not the case for OCD. Effective psychological treatments for trichotillomania have been less well defined. The behavioural technique of habit reversal is widely advocated [34], which differs from the exposure and response prevention paradigms that can be so effective for OCD. In habit reversal, the emphasis is on altering the pattern and associations of the hair pulling, rather than on ‘exposure’ per se. However, the precise elements of habit reversal that are effective have not been clearly delineated.

Pathogenesis

The aetiology of OCD and OC spectrum disorders is not known. Although neuroimaging and neuropsychological data shed some light on pathogenetic mechanisms in OCD [60], research on the neurobiology of putative OC-spectrum disorders, while increasing [46], is still very limited. In a controlled and blinded family study of OCD probands by Bienvenu *et al.* [61], either BDD alone or BDD with hypochondriasis occurred significantly more frequently in first-degree relatives of OCD probands than community control probands. However, other putative spectrum disorders, including hypochondriasis alone and impulse control disorders, did not (although the impulse control disorders, including trichotillomania, had a low prevalence, limiting the power to detect differences between case and control relatives). These findings support BDD’s membership in a familial OC spectrum but give only mixed support for hypochondriasis. Another family study found that rates of somatization disorder, but not OCD, were higher in first-degree relatives of hypochondriasis probands than control probands [62]. Although the Bienvenu study [61] did not support a familial relationship between OCD and

trichotillomania, other studies have reported increased rates of OCD in relatives of patients with trichotillomania [63,64].

There have been suggestions that hair pulling, along with other behaviours such as skin picking (which is a common symptom of BDD [28]) are an expression of abnormal grooming behaviours. This notion has some consonance with ethological theories of OCD, exemplified by the repetitive 'acral lick' seen in dogs and some other animals, and which show a therapeutic response to SSRIs [46]. However, other aetiological factors have also been considered in trichotillomania, including immune-mediated or neuroimmunocutaneous-endocrine interactions [34].

Synthesis

The notion of an OC spectrum has much heuristic appeal, as it has potential treatment implications and groups disorders based on their presumed relatedness to one another. However, the extent to which inclusion of the candidate disorders subsumed within the spectrum can be defended is variable, as outlined above. Thus, we are left with many questions regarding the validity of this proposed spectrum of disorders. First, there is a paucity of data on these disorders' pathogenesis, which would clarify which disorders should be included in this spectrum, and it is difficult to generate operational criteria for inclusion based on other domains. Indeed, simply manifesting obsessional thoughts and/or compulsive activity is insufficient, as articulated above. Reliance on comorbidity is similarly problematic. Indeed, OCD is more highly comorbid with depression and other anxiety disorders (generalized anxiety disorder, panic disorder, agoraphobia) than with the OC spectrum disorders [65]. The same can be said for several spectrum disorders themselves; BDD, for example, is highly comorbid with depression as well as social phobia [25,28], and trichotillomania is more highly comorbid with anxiety disorders and depression, than OCD [34]. Although these findings may at least in part reflect the high prevalence of depression and anxiety disorders in the general population and clinical settings, they do not offer much support for OCD's relatedness to many of the OC spectrum disorders.

Demographic parameters are also not particularly helpful in delineating which disorders should be included in the OC spectrum. The early onset and persistence of symptomatology that occur in OCD and BDD, for example, are shared by many other psychiatric disorders, such as social phobia and personality disorders. The earlier onset of OCD in men mimics the onset-distribution of schizophrenia; as noted above, this might be a clue to a 'neurodevelopmental' form of OCD, as has been proposed for schizophrenia [17]. Also, while limited family studies support a familial relationship between BDD and OCD, they offer only mixed support for hypochondriasis and trichotillomania. For example, some family studies support a relationship between hypochondriasis and somatization disorder [62]. Indeed, one variant of hypochondriasis may be related to OCD, whereas another variant may be more closely related to somatization disorder or depression [33,40,62,66,67], underscoring the likely heterogeneity of the OC spectrum disorders themselves.

Reliance upon treatment response to determine OC spectrum membership also has limitations. For example, the relative specificity of SSRI response is not unique to OCD, as SSRIs have been shown to be preferentially efficacious for premenstrual dysphoric disorder [68]. Furthermore, not all OC spectrum disorders appear to respond selectively to SSRIs (although treatment data are limited). Indeed, even OCD itself is heterogeneous with respect to SSRI response, with approximately 30% of patients not responding and many more showing incomplete symptom resolution [45]. Furthermore, certain OCD subtypes (notably, hoarding) are notoriously difficult to treat using any modality. This again underscores the heterogeneity

of OCD itself. It is likely that in the future what is currently considered the disorder OCD will itself be seen as a spectrum of disorders with variable aetiologies and treatment responses.

A more fruitful approach may be to consider *behaviours* and *dimensions* in OCD and OC spectrum disorders. For example, Bienvenu [61] reported that ‘any grooming behaviour’, such as trichotillomania, skin picking and nail biting (although not any one of these disorders/behaviours individually), aggregated in families of OCD probands, but that individual impulse control disorders did not. Leckman *et al.* [11] found that the aggressive/sexual/checking factor and the symmetry/ordering factor in OCD were significantly correlated in sib pairs, as well as in mother–child pairs, concordant for Tourette’s syndrome. And a study that used positron emission tomography to evaluate neural correlates of these factors/dimensions suggested that dysfunction in different regions of the brain (e.g. striatum and prefrontal cortex) may mediate these factors [69]. Approaches and findings such as these hold hope for a better understanding of the pathogenesis of OCD and putative-related disorders [70].

Ultimately, some of the debate regarding the OC spectrum reflects the tension that inevitably exists between dimensional and categorical approaches to psychiatric nosology. In much of what is written about this spectrum, there are assumptions pertaining to both categories and dimensions. In terms of categories, there is an attempt to ‘link’ a number of possibly related disorders that share certain symptoms into clusters, as articulated above. Yet the clusters are also related to each other in terms of a number of dimensions. The dimension that has been most widely discussed is that of risk-seeking (impulsive)/risk-averse (compulsive); however, a cognitive (obsessional)/motoric (rituals) dimension, as well as a dimension based on degree of conviction (uncertainty/certainty) have also been discussed [20,21,71].

These dimensions have potential therapeutic implications. For example, disorders at the impulsive end of the risk-seeking/risk-averse dimension appear to respond more rapidly to SSRIs, but the benefit may wane with time, and preliminary evidence suggests that they may respond to opioid antagonists rather than, or in addition to, SSRIs [57,72]. Antipsychotics are indicated for, or may play a role in treating, disorders at the motoric end of the spectrum (Tourette’s syndrome and trichotillomania). Whether antipsychotics are useful as SSRI adjuncts for disorders with high degrees of certainty (e.g. delusional OCD or BDD) is an important question that warrants investigation.

Thus, while the OC spectrum has heuristic value, membership or exclusion of particular disorders is variably defensible, and a broader consideration of dimensional aspects of symptoms is required in further iterations of the concept.

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