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SPECIAL ARTICLE

Kraepelin's views on obsessive neurosis: a comparison with DSM-5 criteria for obsessive-compulsive disorder

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Emil Kraepelin (1856-1926) is considered one of the founders of modern psychiatric nosology. However, his conceptualization of obsessive-compulsive phenomena is relatively understudied. In this article, we compare and contrast excerpts from the eighth edition (1909-1915) of Kraepelin's Textbook of Clinical Psychiatry focusing on what Kraepelin called "obsessive neurosis" and related "original pathological conditions" with the current DSM-5 criteria for obsessive-compulsive disorder (OCD). Consistently with DSM-5 OCD, Kraepelin described obsessive neurosis as characterized by obsessive ideas, compulsive acts, or both together. His detailed descriptions of these symptoms are broadly coherent with their characterization in DSM-5, which is also true for the differential diagnoses he provided. He also mentioned cases illustrating decreased insight into symptoms and association with tic disorders. In conclusion, Kraepelin's experience, which reflects decades of consistent clinical work, may help validate current ideas and explain how the current conceptualization has emerged and developed. Even though one can hardly say that the classification laid out in DSM-5 goes back to Kraepelin's views directly, it still is true that Kraepelin played an outstanding role in systematizing psychiatric diagnostic criteria in general, and provided a major contribution to the conceptual history of OCD.

Keywords: History of psychiatry; obsessive-compulsive disorder; diagnosis and classification; neurosis; Tourette's disorder

Introduction

Emil Kraepelin has been acknowledged as one of the forefathers of modern scientific psychiatry. A key result of his clinical empirical approach to psychiatry was a new nosology, which he introduced in the mid-1890s and which was of great importance for the classification of mental illnesses throughout the 20th century. Kraepelin's definition of and differentiation between "manic-depressive illness" (affective disorders) and "dementia praecox" (which was later mostly absorbed by Eugen Bleuler's concept of schizophrenias) have repeatedly been acknowledged as his major and most lasting achievement.[1-8]

By contrast, both his classification and conceptualization of obsessive-compulsive disorder (OCD), or "obsessive neurosis" (*Zwangsneurose*), in his wording, have been largely neglected. This, however, seems to merely reflect the surprisingly scarce research into the conceptual history of OCD in general. So far, only a few general chronological overviews about the early conceptualization of OCD (up to the early 1900s) have been published.[9-12] These suggest that during the first decades of the 19th century, French psychiatry categorized obsessive-compulsive phenomena among the range of monomanias. Jean E. D. Esquirol (1772-1840) had defined monomanias as partial impairments of mental functions while mind and reasoning were unaffected or healthy. He is said to be the first to have mentioned obsessive-compulsive phenomena, and described the case of a young woman who feared and consequently avoided touching other people as well as certain objects. She also had peculiar behavioral patterns, which she explained were necessary in order to cool down or reassure herself. Esquirol pointed out that while this woman was fully aware of the peculiarity of her behavior and the disproportionality of her worries and even tried to fight them, i.e., showed an understanding and awareness of her illness, she still could not refrain from performing her obsessive behaviors.[13,14]

Under this influence, German psychiatrists Carl Westphal (1833-1890), Richard von Krafft-Ebing (1840-1902), Wilhelm Griesinger (1817-1868), Robert Thomsen (1858-1914), or Leopold Löwenfeld (1847-1924), but also their French colleagues Legrand du Saulle (1830-1886) and Pierre Janet (1859-1947), made major contributions to an understanding of the illness and classified obsessive-compulsive phenomena into a newly formed class of compulsive neuroses. A closer look into the conceptual history of OCD starting from the criteria for diagnosing OCD according to the DSM-5 and ICD-10 reveals that the works by Westphal and Thomsen proved particularly relevant.[12]

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It was Westphal who first went beyond a purely descriptive approach and presented the first clear and phenomenological description and classification of OCD in 1877. Furthermore, he ruled OCD to be understood as an independent illness in its own right.[15,16] In the mid-1890s, Thomsen, who was a student of Westphal's, came to the conclusion that OCD is both an illness in its own right as well as a set of obsessive and compulsive symptoms associated with other mental illnesses.[17]

Kraepelin relied on these previous works to develop his concept of obsessive neurosis. In particular, his introduction to the chapter on obsessive neurosis in the eighth edition of his textbook provides an overview of the main ideas of Westphal, von Krafft-Ebing, Griesinger, Thomsen, Löwenfeld, du Saulle, Janet, and others. In total, Kraepelin cites 36 sources by 27 scholars. Interestingly, the work of Griesinger is described without a citation. Later in the chapter, Kraepelin offers his own critical view, expertly combining his own clinical and research experience with the propositions made by others.

The aim of the present study was to analyze to what extent the descriptions put forward by Kraepelin of symptoms, etiology, nosology, and differential diagnoses of what is now conceptualized as OCD coincide with DSM-5 criteria and descriptions of OCD.

Methods

In this study, we investigate how well Kraepelin's concept of "obsessive neurosis" fits the current DSM-5 criteria for OCD.[18] For that, we specifically address each DSM-5 diagnostic criterion for OCD in contrast to excerpts from the eighth edition of Kraepelin's textbook, which was the last edition entirely prepared for publication by Kraepelin himself (henceforth cited by volume number, I or IV,[19] followed by the page number, in square brackets). In some specific cases, excerpts from the first edition of the textbook, published in 1883 (quoted as Kraepelin, 1883 followed by the relevant page in the book[20]), are also quoted and evaluated in terms of their correspondence to the DSM-5. The relevant sections in the eighth edition can be found in volume I (containing general considerations regarding the categorization and classification of mental illnesses) and in the chapter on "obsessive neurosis" in volume IV. To illustrate the depth of Kraepelin's description of OCD, it should be mentioned that the "obsessive neurosis" chapter in volume IV is 95 pages long; in addition, a substantial number of pages in the first volume is also dedicated to general considerations about the condition.

Results

From a broad nosological point of view, it is remarkable that Kraepelin did not place "obsessive neurosis," "dementia praecox," or "manic-depressive insanity" in a group of psychoses. Rather, he categorized these entities as "original pathological conditions" (*originäre Krankheitszustände*), described as "usually lasting or temporary deficiencies in the person's mental shape (*psychische Persönlichkeit*) [...] to which, however, at times genuinely pathological traits can add." Kraepelin added that "if it were possible today to group these conditions by their actual cause with a certain degree of accuracy, we would see that those were based on hereditary degeneration or on germ cell damage" [IV, 1780]. In other words, Kraepelin classified "obsessive neurosis" as a developmental disorder based on damaged or suboptimal genetic material, rather than on active ongoing pathological processes. It is also interesting to note that, in his late works, Kraepelin conceptualized OCD together with anxieties and fears.

DSM-5 criterion A for OCD: obsessions and/or compulsions

For the diagnosis of OCD, DSM-5 requires the presence of obsessions, compulsions, or both.[18] Thus, it acknowledges the occurrence of obsessions in the absence of compulsions, and of compulsions in the absence of obsessions. However, there has been some discussion on this topic, as it was proposed at some point that some form of compulsion is always present in OCD and should be a mandatory criterion. For instance, some authors have argued that patients who were thought to exhibit pure obsessions in fact had "mental compulsions," which led them to conclude that the existence of pure forms of obsessions in OCD was in fact a myth.[21]

Apparently, Kraepelin did not produce separate definitions for obsessive ideas and compulsive acts. Rather, he disagreed from a narrow definition of obsessive idea. For him, not only were obsessive-compulsive phenomena based on a disorder of the mind or in the course of ideas, but almost always also had an affective element [IV, 1887-8]. Much like phobias, obsessive ideas and compulsive acts were considered processes aimed at avoiding or managing stimuli that were perceived as threatening, and could not be clearly separated from each other [IV, 1888]. This is different from the approach adopted by DSM-5, in which OCD is no longer described as a primary anxiety disorder, but rather as a condition at the core of a newly described category, termed obsessive-compulsive and related disorders (OCRDs).[22] Anxiety plays only a secondary role in OCRDs, which are characterized by repetitive thoughts and/or behaviors.

Kraepelin acknowledged that many obsessive neuroses do not involve a compulsive act, but rather the fear of actually committing the act one day. He suggested that "the remains of self-control" may prevent the patient from actually committing the act [IV, 1835] and mentioned some "musical obsessive ideas," which "are not combined with compulsive acts" [IV, 1836]. Also, although Kraepelin recognized that "very often, patients are forced by their anxieties to do certain things that are meant to give them protection" [IV, 1871] (i.e., compulsions), he also acknowledged that "at times, those habits [movements, behavioral patterns, exclamations, incantations, etc.] solidify in a way that the patient continues practicing them without giving any thought, mechanically, even though the fear has almost or fully gone" [I, 395].

Therefore, Kraepelin also mentioned "compulsive acts" that were unrelated to obsessive ideas or fears, alluding to compulsions linked to feelings of incompleteness or tics, as currently conceptualized.[19] More specifically, he argued

that, sometimes, "there are compulsive acts in the closer sense, in which there is a causal drive independent of fears. Mostly however, their content is comparatively harmless, like the urge to cry out swear words, scurrilities, blasphemic expressions, or push stones off a wall." He also noted the social discomfort associated with these behaviors as they were also often followed by embarrassment to have submitted to the inner drive [I, 396].

Criterion A1: defining obsessions

The DSM-5 defines obsessions as "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 and distress."[18] It also requires the presence of "attempts to ignore or suppress such thoughts, urges, or images or to neutralize them with some other thought or action (i.e., by performing a compulsion)." Importantly, there is no clear mention to whether it is possible to ignore, suppress, or neutralize obsessions by means of strategies other than compulsions.[23]

Even though he did not define obsessions *per se*, Kraepelin's description of the phenomena involved is broadly consistent with DSM-5. In fact, he points out that symptoms can be recurrent, persistent, and, therefore, extremely time-consuming. For instance, he describes how sometimes "the illness fills the whole day and takes up all the attention of the patient" [IV, 1877-8]. The fact that obsessions can take the forms of urges or images is also stressed in several passages of Kraepelin's textbook. For instance, he describes that "at times the ideas conquering the patient's mind are very clear and hence remind an observant of hallucinations or illusions, e.g., the patient being tortured by lively images of things earlier seen or grotesque faces" [IV, 1836]. The pictorial nature of some obsessions is also alluded to when he describes "blasphemous pictures," "ideas of disgusting things," "other people having sex," and "buttocks or sexual organs of other people," among other symptoms [IV, 1837].

Much like in the DSM-5, the intrusive nature of ideas and fears is a core aspect of Kraepelin's definition of obsessive neurosis. To him, obsessive ideas "impose" on patients against their will [IV, 1836]. However, he also noted that certain obsessions, e.g., rhythmic (musical) obsessive ideas, may not be unwished or intrusive. Despite being an important feature of obsessive symptoms, intrusiveness was also noted by Kraepelin to be an important characteristic of compulsions. For instance, he recognized that compulsive acts may sometimes "arise from pathological drives that blaze the trail forcefully" thus being carried out "involuntarily" [IV, 1834], which seems to refer to the concept of complex motor tics.[24]

The previous edition of DSM (DSM-IV-TR) required obsessions to cause marked anxiety and distress. In DSM-5, however, that criterion was changed to accommodate OCD patients who do not display these emotions as a result of their obsessions (e.g., patients showing disgust or incompleteness).[25] Specifically, DSM-5 now defines obsessions as symptoms "that in most individuals cause marked anxiety and distress," which is more in line with Kraepelin's notion that obsessions may also lack fear [IV, 1864 + 1891]. Finally, as for the "attempts to ignore or suppress" obsessions by not performing compulsions in DSM-5, Kraepelin recognizes non-compulsive attempts to deal with obsessions, e.g., when he described a patient who "tried to prevent the fears from coming by dressing extremely quickly and jerkily, yet often in vain" [IV, 1867].

Criterion A2: defining compulsions

In DSM-5, compulsions are defined by "repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the individual feels driven to perform in response to obsessions or according to rules that must be applied rigidly."[18] Accordingly, Kraepelin provided many descriptions of what he termed "protective acts," presently described as compulsions. He argued, for instance: "... quite often protective actions extend for many hours of the day and hence make a regular job impossible." He also described "fears or disturbing cascades of thoughts" whose "inhibiting influence can only be overcome by special, mostly time-consuming tricks" [IV, 1867] and that, for instance, "the washing can go on for hours before the patient has won a partial reassurance to be clean" [IV, 1867].

As reported above, considering the existence of mental acts in patients once thought to have pure obsessions, some have suggested the incorporation of compulsion as a diagnostic criterion of OCD in the DSM-5.[21] It is not clear whether the diagnostic requirement of imposed obsessions against the patient's will refers to some degree of internal resistance, and thus "mental compulsiveness." In any case, however, Kraepelin has described mental acts such as counting, calculating, and brooding (e.g., "What is God? Why is the chair standing this way and not that way?"), where "cascades of questions" impose on the patient and force him or her to think about them [I, 358-9], thus also alluding to the current concept of mental compulsions.

While the presence of compulsions is tied to the presence of "pre-existing" obsessions or rules that must be applied rigidly in DSM-5, the latter does not clearly differentiate "rigid rules" from "obsessions." Also, DSM-5 does not clarify whether the so-called "sensory phenomena" (e.g., feelings of "needing to" perform a certain behavior to alleviate a distressing sensation),[26] which are frequently associated with "pure compulsions" (or compulsions tied to "rules"),[27] qualify as "obsessions." Thus, DSM-5 terminology is sometimes unclear. Nevertheless, as we have previously pointed out, Kraepelin has already described compulsive acts not related to obsessive ideas or fears or "habits" that "solidify" "even though the fear has nearly ceased to exist" [I, 395]. Thus, to Kraepelin, compulsions do not seem to be necessarily preceded by obsessions.

Critically, DSM-5 recognizes that "the (compulsive) behaviors or mental acts are aimed at preventing or reducing anxiety or distress, or preventing some dreaded event or situation"[18]; however, DSM-5 requires these behaviors or mental acts to be disconnected in a realistic way from what they are designed to neutralize or prevent (e.g., arranging items symmetrically to prevent harm to a loved one) or to be clearly excessive (e.g., showering for

hours each day). Thus, to be qualified as compulsions, anxiety-reducing behaviors or mental acts must also be either qualitatively or quantitatively ''abnormal.''

Even though Kraepelin, on the one hand, described compulsions whose motivation is still very clear, he also alluded to an apparent "bizarreness" of some OCD symptoms, in particular compulsive acts or behaviors ''whose correlation with the fears remains unclear'' or where ''there may be an original motif, which later on has been blurred'' [IV, 1873]. Kraepelin also provided many examples of behavioral patterns in ''fear of dirt'' and ''fear of contact/touch'' that were ''extremely bizarre and incomprehensible'' [IV, 1878]. The excessive nature of compulsions is exemplified in relation to compulsive brooding and questioning, where one could note ''excessive following of actually justified and necessary ways of thought'' [IV, 1840].

DSM-5 specifically states that young children may not be able to articulate the aims of these behaviors or mental acts. Kraepelin described this as ''naivety.'' He also mentioned that obsessive neuroses in children are to be understood primarily as belonging among the ''simple obsessive ideas,'' since they obviously lack fearfulness. Kraepelin believed obsessive neurosis to be a continuation of an earlier state of mind, a ''certain inhibition in development'' or an ''infantilism of character'' [IV, 1891]. He recognized that ''at times'' the illness begins ''as early as in childhood, more frequently in adolescence'' [IV, 1875]. To Kraepelin, several compulsive phenomena – such as the inclination to calculate or count, to change/reverse words, to remember things, to follow certain rules when walking–can be found in children quite frequently, yet they might wear off later on. Recent studies have confirmed some of Kraepelin's observations, including increased prevalence of counting symptoms[28] and a favorable outcome of OCD in children.[29]

Kraepelin also referred to ''primary compulsive drives'' or urges (*primäre Zwangsantriebe* according to Löwenfeld[30]), which were ''sparse acts'' restricted to ''extremely harmless expressions'' often occurring only once, like one isolated episode of cursing when celebrating something, intermixing blasphemic expressions into prayers, coprolalic episodes, or throwing an object onto the ground [IV, 1874]. Kraepelin acknowledged that these symptoms lacked the intense and ''protracted'' nature of compulsive acts arising from fears [IV, 1874]. Also, the notion of obsessions as drives rather than cognitions are not accommodated comfortably by DSM-5. Perhaps these symptoms would qualify as complex vocal and motor tics in current terms.[26]

DSM-5 criterion B for OCD: disentangling OCD from non-pathological phenomena

In an attempt to differentiate clinically relevant OCD symptoms from non-pathological phenomena, OCD diagnosis according to the DSM-5 requires that obsessions or compulsions be time-consuming (e.g., take more than 1 h per day) or ''cause clinically significant distress or impairment in social, occupational, or other impact areas of functioning.'' This recommendation relates to the observation that normal individuals can exhibit so-called ''normal obsessions or compulsions,'' which are not severe enough to characterize a true obsession and, thus, OCD.[31,32] Accordingly, Kraepelin had already described that ''[pseudo] obsessive drives''–like the inner urge described by a woman to drown her baby while bathing the child, but fantasizing about it rather than actually doing it–''fully coincide with the fantasies that occur occasionally also in healthy people,'' like when they would ''ask 'what would happen if I/you...'" [IV, 1853-4].

The time-consuming nature of such symptoms and the job-related and social consequences arising from them are perfectly mirrored in Kraepelin's remarks, as already discussed: ''Not only quite often protective actions extend for many hours of the day and hence make a regular job impossible,'' but also ''the patients are inhibited in all their actions [...].'' Above all, Kraepelin argued obsessive brooding to be calamitous, for it refrains patients from any action involving responsibility, leading to fear of having a job and to social isolation [I, 397-8]. Kraepelin also described ''certain groups of ideas, e.g., rhythmic structures, verses, quotations, and melodies'' that could obtrude on healthy individuals, just like ''the painful memories of a dreadful/horrifying experience or a disgusting impression'' (e.g., the image of a bleeding animal when eating), and ''contrasting ideas'' (e.g., ghost stories obtruding onto anxious people, blasphemic ideas imposing on religious people) [I, 298-9]. Yet Kraepelin was also aware that ''normal,'' undisturbed and healthy people at times exhibit obsessions and compulsions; the reason being that ''in general cultural life (i.e., healthy unaffected people), a feeling of uncertainty of being responsible for something has been grown in the people,'' which could lead to a state of ''lasting inner tension'' or ''permanent distrust'' in their own achievements and capabilities. This feeling could promote the development of fears (like the one to fail) or doubts on the one hand, and the development of a ''scrupulousness in their way of thinking and acting'' [I, 299-300].

He argued that ''the well-known experience in a healthy life, such as the thought [fear] of precipitating oneself or others as it emerges on the edge of a hill or a bridge or the fear of saying something inappropriate at a party or of committing an inappropriate or ridiculous act like shouting out 'fire' in the middle of a theatre performance gives us a hint to understand these disorders'' [I, 394]. According to Kraepelin, once individuals are preoccupied by ''the form or content'' of these ''compulsive ideas,'' they would exhibit obsessive fears, ''until the mood has calmed down again.'' Therefore, Kraepelin suggested that ''compulsive ideas are not pathological and with that a symptom of an obsessive neurosis before they become part of a compulsive fear, i.e., before the patients start to fear it might repeat'' [IV, 1865]. This theory is broadly consistent with current cognitive conceptualizations of OCD.[33]

DSM-5 criterion C for OCD: excluding substances or other medical disorders as etiologies

For a DSM-5 diagnosis of OCD, obsessive-compulsive symptoms should not result from either the physiological effects of a substance (e.g., a drug of abuse, a medication)

or medical condition. While Kraepelin did not describe substances as causes of obsessive-compulsive symptoms, he mentioned a series of physical or mental symptoms that could be associated with obsessive neurosis, including exaggerated irritability of the nerves, vivid tendon reflexes, ankle clonus, increased or irregular pulse, (vessel) engorgements, shivering, giddy spells (dizziness), faints (blackouts) following excitation, pain, paresthesia, alcohol intolerance, vivid dreams, sleep disorders, and hysterical phenomena [IV, 1827].

DSM-5 criterion D for OCD: differential diagnosis

DSM-5 also requires obsessive-compulsive symptoms not to be explicable by other mental disorders, like generalized anxiety disorder, body dysmorphic disorder (BDD), hoarding disorder, trichotillomania and excoriation disorder, stereotypic movement disorder, eating disorders, substance-related and addictive disorders, illness anxiety disorder, paraphilic disorders, disruptive, impulse-control, and conduct disorders, major depressive disorder, schizophrenia and other psychotic disorders, and autism spectrum disorders. It is notable that Kraepelin mentioned equivalents of almost all of them (with the exception of generalized anxiety disorder and the modern concept of autism) as conditions to be ruled out for a diagnosis of obsessive neurosis, and also added examples to the list of differential diagnoses (e.g., manic episode, personality disorders, and hysteria).

Yet there are some notable differences between the approach of Kraepelin and DSM-5 to differential diagnosis of OCD. For instance, according to DSM-5, the diagnostician has to differentiate OCD obsessions from preoccupations with appearance that are characteristic of BDD. However, no such differential diagnosis is possible according to Kraepelin, since he considered persistent and ego-dystonic dysmorphophobic ideas (today's BDD) to be a form of OCD [e.g., IV, 1861].

Within the section on obsessive neurosis, Kraepelin described "a strange habit of carefully collecting, marking, and storing the waste of their bodies, like [finger and toe] nails, hair, dandruffs, and ear wax," which he characterized as a behavior that prevented fears (thus akin to obsessive neurosis), but also as a behavior to keep "presumably valuable things" [IV, 1868-72]. Thus, although Kraepelin alluded to different motivations for hoarding behaviors, he did not explicitly describe hoarding cases unrelated to fear, i.e., he did not clearly perceive such behavior as a different condition from OCD, as in DSM-5 hoarding disorder. Thus, no differential diagnosis seems possible here, at least from Kraepelin's perspective.

Trichotillomania (including "swallowing [one's own] hairs"), excoriation (skin picking) disorder and conditions that could be classified as stereotypic movement disorder (e.g., "nail biting" and "thumb-sucking") were described by Kraepelin as "uniform and simple drives" or impulsive acts [*Triebhandlungen*] that could be observed in states of excitation in a variety of mental disorders, e.g., mania, epilepsy, hysteria, idiocy, and feeble-mindedness. In contrast to compulsive acts, these drives were "not intrusive, but natural expressions of the patients' own state of mind" [I, 400].

Eating disorders are listed by DSM-5 as conditions that may mimic OCD for being associated with ritualized eating behaviors. While Kraepelin acknowledged that eating symptoms could result from obsessive neurosis (e.g., because of the fear to eat something that hurts the throat or is dangerous for the inner organs, eating may be made "more complicated and complex by searching for needles or bits of broken glass in it, just like the cooking itself" [IV, 1868]), he also included "disorders of the instinct to eat" as "pathological drives," crucially associated with an inner wish or urge to cause a stir [I, 399-402], thus suggesting a difference between eating disorders and obsessive neurosis.

Both in the first and eighth edition of his textbook, Kraepelin described numerous cases of compulsive acts secondary to health concerns or "hypochondriac obsessive ideas" (today termed illness anxiety disorder). He believed this form of hypochondria to be a symptom of obsessive neurosis or neurasthenia [Kraepelin, 1883, 360], thus apparently contradicting DSM-5, which describes illness anxiety disorder as a "somatic symptom-related disorder"[18]. However, in the first edition of his textbook, Kraepelin differentiated "hypochondriac obsessions" from what he believed to be a genuine form of hypochondria; to him, the first was characterized by acute onset ("contents relating to the patient's well-being conquer consciousness very quickly") and chronic course ("ideas gain permanent power"), while the latter was more likely to turn into "depressive psychoses" [Kraepelin, 1883, 360].

DSM-5 also recommends ruling out impulses associated with disruptive, impulse-control, and conduct disorders, preoccupations linked with substance-related and addictive disorders, and sexual urges and phantasies due to paraphilias before a diagnosis of OCD is established.[18] According to Kraepelin, these conditions may be considered the opposite of obsessive fears, since the acting involved is not perceived as unnatural and imposed, but as an expression of one's own will. To him, the aim of these conditions is "alluring," "tempting," and can "turn into craving" [IV, 1902]. Kraepelin believed that, in following their inner drives, patients with these groups of conditions would feel a "deep satisfaction," show "no regrets," and deny partially or completely the negative consequences or impact of these inner drives [IV, 1902]. While DSM-5 requires diagnosticians to exclude paraphilias' sexual urges or fantasies for a diagnosis of OCD, Kraepelin recognized the resemblance between both conditions by listing both "impulsive madness" and "sexual aberrations" (including sadism) and obsessive neuroses in one group of "original pathological states" (*originäre Krankheitszustände*), which were closely related to each other.

When it comes to depression, DSM-5 is concerned about differentiating guilty ruminations from obsessions. Nevertheless, Kraepelin's concerns were broader than those of DSM-5, i.e., he provided guidelines for differentiating each component of manic-depressive insanity from obsessive neurosis, as he also noted similarities

between the distractibility and inner flight of ideas present in mania and the obsessive brooding and questioning that may be found in obsessive neurosis. To Kraepelin, patients in mania do not try to resist the symptoms that are intruding into their life, while obsessive neurosis patients do [IV, 1896].

Kraepelin believed that compulsions in manic-depressive insanity were drives that would be turned into actions (e.g., suicide or killing family members), vs. fears that would not be turned into actions in obsessive neurosis compulsions [IV, 1835]. He argued that a course of illness associated on the one hand with "explicit spells" including an acute emergence of all symptoms followed by complete disappearance of symptoms, along with a "frequently light and entertaining spirit" on the other [IV, 1877], would hint at manic depressive insanity. In these cases, Kraepelin argued, "compulsions too can disappear suddenly, but also lead to other, more severe conditions" [IV, 1880-1].

In cases with repeated "spells," in which at the same time other symptoms of depression (the idea to commit a sin, inhibitions of thought and will, suicidal tendencies) would appear and suddenly disappear, and even more clearly in cases in which manic phases, "explicit hallucinations," "persecution mania," clear self-endangerment or endangerment of others were also present, Kraepelin believed that there would be enough evidence for diagnosing an affective disorder or "manic-depressive insanity" [IV, 1895]. He also suggested that patients with real compulsions seem perfectly free from the "inner tensions" when they are distracted or calmed (reassured). In contrast, depressives do not lose their feeling of inner pressure even if one manages (attempts) to ease their symptoms. To him, depressives also exhibited more frequent sleep and appetite disorders, dissatisfaction with life [IV, 1895], mood cycling in the morning, and affected blood relatives [IV, 1896].

According to DSM-5, obsessive-compulsive symptoms need to be differentiated from "thought insertion," a phenomenon typically described in schizophrenia and other psychotic disorders.[18] Although Kraepelin did not discuss "thought insertion," a construct which was only developed years after his death,[34] he described cases "in which the content of the obsessive fear is transferred into hallucinations or illusions of vivid phantasy, which can be self-sustaining" or based on falsified real impressions. Kraepelin interpreted these symptoms as "hysterical ingredients to an obsessive neurosis" [IV, 1893]. However, he did not provide further clues on how to differentiate delusions originating from OCD from delusions seen in other types of madness.

For Kraepelin, obsessive neuroses could involve "absurd" abnormal behaviors that could easily be compared with the mannerisms in schizophrenic patients. However, in OCD patients, "anxious fears" could become "accessible and natural" if one was able to gain the patient's confidence. If one did, this would provide a rather good understanding of both the patient's situation and "the tortures" it provides. By contrast, schizophrenic mannerisms would be "purely impulsive discharging," "normally incoherent," and "without any background intentions." To Kraepelin, schizophrenia patients would not reveal or were even incapable of describing "the background and meaning" of their manners. However, if by any chance the physician succeeded in establishing a relationship with a schizophrenia patient, Kraepelin believed he or she would be "surprised by the lack of inner mental connections" of the patients' behavior and actions and also by the patients' "indifference" towards his symptoms [IV, 1897].

Kraepelin believed catatonic excitement and stupor to be in most cases a form of dementia praecox, which later formed the basis for the group of schizophrenias. Hence, he also provided clues on how to differentiate dementia praecox from obsessive neurosis. Kraepelin claimed that patients with catatonia are subjected to strange drives that have an obsessive component; yet, they do not feel an inner resistance to nor do they fight the drive, which is not perceived as intruding or overwhelming [I, 396-7]. In catatonia, Kraepelin argued, there is no feeling of being defeated, no like or dislike, and no explanation possible. Patients simply give in to what comes to their mind, although, at times, a delusional aspect can be observed; as actions are carried out quickly, hastily, heftily, and recklessly, Kraepelin believed them to be impulsive [I, 400-1].

According to Kraepelin, personality disorders could involve "obsessive ideas" very similar to those of obsessive neuroses, such as the " habit to count or calculate" ("mental compulsions" according to DSM-5). Currently, these symptoms are recognized as similar to the symmetry and ordering dimension of OCD.[35] However, Kraepelin suggested that, in contrast to OCD patients, patients suffering from a personality disorder would perceive these symptoms as expressions of their own personalities, and not as alarming phenomena that overwhelmed their will [IV, 1864]. Thus, Kraepelin seemed to allude to ego-syntonic behaviors associated with DSM-5 obsessive-compulsive personality disorder in the differential diagnosis of obsessive neurosis, a step not taken by DSM-5.

Finally, Kraepelin, but not DSM-5, mentions certain theatrical or dramatic compulsive acts (like exclamations, "counter-announcements," or "cantations") that OCD patients use to counter or render their obsessive thoughts or ideas harmless or make them stop [IV, 1872-3]. He viewed these phenomena as symptoms of both OCD and hysteria; in the latter, however, these acts could "stop all of a sudden or very quickly" [IV, 1880-1]. To disentangle them, Kraepelin resorted to the role of external factors in the origins of behavior in hysteria and to the "inner helplessness" observed in obsessive neurosis [IV, 1893]. He also mentioned the "playful manner" through which the inner drives and excitations were expressed in hysteria as compared to the "very light" and "harmless traces" seen in obsessive neurosis [IV, 1894].

In addition to providing a list of conditions to be differentiated from OCD, Kraepelin refuted (in the eighth edition of his textbook) the development of obsessive neuroses into other mental illnesses, in particular paranoia, dementia praecox, or manic-depressive insanity. According to Kraepelin, as suggested by Julius Ludwig August Koch (1841-1908),[36] the contrary was actually

true–namely, that suffering from an obsessive neurosis could prevent patients from falling prey to a more severe mental illness [IV, 1880]. Thus, although Kraepelin acknowledged that obsessive-compulsive phenomena could also occur in other mental conditions, he seemed to believe that OCD could also exist a discrete condition with clear-cut diagnostic boundaries.

DSM-5 specifiers for OCD

Insight

In DSM-5, OCRD that have a cognitive component (i.e., OCD, BDD and hoarding disorder) can be specified as having "good or fair insight," "poor insight," or "absent insight" into OCRD core beliefs.[18] This is a significant change from DSM-IV-TR, which also included a "poor insight" specifier, but did not acknowledge a spectrum ranging from totally present insight to completely absent insight. By providing these specifiers, the developers of DSM-5 aimed to ensure that patients suffering from lower insight levels would not be diagnosed with primary psychotic disorders and treated with antipsychotic monotherapy.[37]

According to Kraepelin, most OCD patients have some insight into their symptoms and are able to appraise their own experiences. Yet, they cannot refrain from having "absurd" thoughts and/or behaviors. However, Kraepelin also described the possibility that patients with severe obsessive neurosis would show decreased levels of insight, or sometimes even be delusional [IV, 1874-5]. Nevertheless, it was not until the late 1980s that research showed that poor insight,[38,39] and not greater insight,[40] was a marker of OCD symptom severity. This may thus be considered an early observation by Kraepelin for which more recent research data provided evidence.[41]

Although Kraepelin linked health concerns ("hypochondriac obsessions") to the potential development of depressive psychosis in the first edition of his textbook, he later argued that patients showing a very long-lasting and severe course, especially with the "fear of dust" and "fear of being touched and touching" symptoms, were particularly prone to show lower levels of insight. Further, he attempted to "normalize" patients' attitudes toward their symptoms by claiming that, just like a healthy person can lose discretion and see the world in a different light when conquered by vivid emotions, the patient's clear understanding can be defeated by the fearful excitations [IV, 1874-5].

Tic disorders

In DSM-5, it is possible to specify whether OCD is tic-related, which is assumed to be the case if the individual has a current or past history of a tic disorder. Tic-related OCD occurs in up to 30% of all OCD patients, is associated with early onset of OCD symptoms, and is more prevalent in men.[18] DSM-5 defines tics as "sudden, rapid, recurrent, non-rhythmic motor movements or vocalizations." At any point in time, the tic repertoire recurs in a characteristic fashion. According to DSM-5, tics can be simple (performed in milliseconds) or complex (performed in seconds), and can also be classified as motor or phonic. Thus, any given tic could fit into one of the following types: simple motor (e.g., eye blinking), simple phonic (e.g., sniffing), complex motor (e.g., echopraxia or copropraxia), or complex phonic (e.g., palilalia, echolalia, or coprolalia).[18]

Kraepelin also recognized that obsessive neurosis could be associated with tics. However, differently from the tics as such (which were dealt with in a separate chapter), he classified OCD-related tics as involuntary movements or actions for which the patient can often give a clear motif or which might have some potential explanation. Often the patient has come to do this in order to avoid or protect himself against something, i.e., tics related to OCD are understood as "protective acts" [IV, 1873-4]. By contrast, a "normal" tic is categorized as a "driven act" or impulse (*Triebhandlung*), which patients do or are forced to do by a sudden urge, but without a clear motivation as to why this particular thing is done [IV, 1901-16]. Interestingly, hoarding too was understood as a protective act/tic by which the patient protected himself against a certain fear or threat [IV, 1873].

We were able to find only a partial overlap between Kraepelin's descriptions and the DSM-5 characterization of a tic. In fact, Kraepelin described no single, but several different features of the phenomenon. While he mentioned its involuntary nature, he also listed strangeness, monotony, inanity, and independence from external stimulus as phenotypic features. He also noted that tics are potentially "convulsive" (abrupt). Kraepelin was ambiguous about the connection between tics and fears. Although, at some point, he mentioned that tics lack "a connection to the fear of harm," he also defined tics as a "strange group of compulsive acts or real compulsive movements" which had "arbitrary connections" between the content of the fear and the "protective rules" [IV, 1873-4]. Perhaps the ambiguity with which Kraepelin approached tics has links with the types of tics he proposes (OCD-related or not). In fact, it was later recognized that the same abnormal movement can be recognized as a tic-like compulsion or a tic as such depending on whether it is preceded by obsessions (fear) or not.[42]

Kraepelin also described exclamations or "countersayings" (*Gegenspruch*) used in states of excitation which are meant to dispel or render thoughts harmless ("Stop it! Invalid!") [IV, 1872-3]. Although the current diagnostic *zeitgeist* would classify these behaviors as "tic-like compulsions,"[24] Kraepelin apparently considered them as tics that are related to fear (OCD-related tics). Thus, in the presence of behaviors lying halfway between compulsions and tics, modern knowledge seems to put greater emphasis on OCD, while Kraepelin differentiated between two kinds of tics–namely OCD-related tics and independent tics, which he understood as impulses or urges, not compulsions. Kraepelin also appeared to be aware that sometimes "tics stem from meaningful arbitrary movements or, at times, also from the protective acts described above which, however, then consolidate into involuntary and even nearly unconscious compulsive movements" [I, 396].

Discussion

Kraepelin was one of the best known, and perhaps the most influential, figures in German-speaking psychiatry between the late 1890s and 1925. His oeuvre was the most used guideline in German-speaking countries. The remarks made in his textbook had a huge impact on the way mental illnesses were both conceptualized and treated at the time. Taken together, Kraepelin's remarks on OCD as collected from the various places throughout his textbook provided a comprehensive compendium on the condition, much longer than other works of the time dedicated to that condition alone. In fact it is remarkable how much space Kraepelin dedicated to OCD in his book, which was intended as a comprehensive textbook of psychiatry.

Consistently with DSM-5, Kraepelin described that obsessive neurosis could be characterized by obsessive ideas, compulsive acts, or both. His detailed descriptions of these symptoms are broadly consistent with their characterization in DSM-5 (Table 1). He also mentioned other non-repetitive (i.e., non-compulsive/avoidant) behaviors used by obsessive neurosis patients to manage obsessive ideas and described compulsions that were unrelated to fears, particularly in chronic patients. Kraepelin already seemed to find it hard to correctly differentiate compulsions from complex forms of tics, an issue that has not yet been solved.

Kraepelin also attempted to differentiate obsessive neurosis from the experiences of normal people. He acknowledged that obsessive-compulsive symptoms could be found in other medical disorders, particularly affective disorders or schizophrenia. While he believed BDD and certain health fears and compulsions to be OCD, it is not completely clear whether he differentiated hoarding disorder from OCD, although he certainly identified different motives for hoarding behaviors – some of which are, while others are not, related to the current concept of hoarding disorder. Whatever the final outcome, it is remarkable that Kraepelin dealt with the phenomenon of hoarding within the chapter on OCD.

For Kraepelin, impulse control disorders were a distinct entity which was related to OCD, but still different and to be differentiated from it. He also described abnormal eating behaviors secondary to OCD. He differentiated OCD from mania and depression and also provided several clues based on cross-sectional assessments,

Table 1 Overlap between DSM-5 and Kraepelin's views of OCD

DSM-5 criteria for OCD	Kraepelin's view
A. "Presence of obsessions, compulsions, or both"	√
Obsessions	
Are "recurrent and persistent thoughts, urges, or impulses [...]"	√
Are "intrusive and unwanted"	√
"Cause marked anxiety or distress" in most individuals	√
Are associated with "attempts to ignore or suppress [...]" or "to neutralize them with some other thought or action (i.e., by performing a compulsion)"	√
Compulsions	
Are "repetitive behaviors [...] or mental acts [...]"	√
Occur "in response to an obsession or according to rules [...]"	√
Are "aimed at preventing or reducing anxiety or distress or [...] some dreaded event or situation"	√
Are "not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive"	√
"Young children may not be able to articulate the aims of these behaviors or mental acts."	√
B. Symptoms are "time-consuming (e.g., take up more than 1 h per day) or cause clinically significant distress or impairment [...]."	√
C. Symptoms "are not attributable to the physiological effects of a substance [...] or another medical condition."	-
D. Symptoms are "not better explained by [...]"	
Excessive worries (as in generalized anxiety disorder)	-
Preoccupations with appearance (as in body dysmorphic disorder)	-
Difficult discarding (as in hoarding disorder)	-
Hair pulling and skin picking (as in TEDs)	√
Stereotypies (as in stereotypic movement disorders)	√
Ritualized eating behaviors (as in eating disorders)	√
Preoccupation with substances or gambling (as in SRAD)	√
Preoccupation with having an illness (as in illness anxiety disorder)	√
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 SSOPD);	-
Repetitive patterns of behavior (as in autism spectrum disorder)	-
Specifiers	
"With good or fair [...], poor [...], or absent insight (i.e., with delusional beliefs)"	√
"Tic-related: the individual has a current or past history of a tic disorder"	√

OCD = obsessive-compulsive disorder; SRAD = substance-related and addictive disorders; SSOPD = schizophrenia spectrum and other psychotic disorders; TED = trichotillomania and excoriation disorders.

rather than long-term outcomes, on how to disentangle OCD from dementia praecox (schizophrenias). Unlike DSM-5 criteria for OCD, he indicated how to differentiate OCD from personality disorders and ''hysteria.'' Finally, anticipating the modern approach to the insight problem in conditions other than functional psychoses, Kraepelin recognized that insight could be low in OCD. Thus, we conclude that Kraepelin made several relevant, yet overlooked, contributions to the characterization of OCD and its boundaries.

Kraepelin's contribution to the understanding of obsessive-compulsive phenomena is still among the most comprehensive early works on the topic. It was developed and refined until appearing in the eighth edition of Kraepelin's textbook, published between 1909 and 1915. After Kraepelin, OCD remained closely connected with anxiety-based explanations. It seems fair to assume that given his impact and the widespread use of his textbook, it was Kraepelin's view that was disseminated. In France, this view was introduced through Janet's concept of psychasthenia. For Janet, psychasthenia was a decline in mental resilience, which in turn led to a decline in all mental functions and promoted adaptability to an impaired reality. The decline and impairment were particularly true for all functions responsible for capturing the individual elements of reality and for their integration into a meaningful whole (what Janet called ''mental synthesis''). As a result, people affected by psychasthenia suffered from indisposition, unsettledness, and a feeling of being incomplete. Obsessive ideas were explained by Janet as a result of this subjective impairment.[43] Janet's concept can be referred to as a dimensional and at the same time depth psychological approach to OCD.

According to Kraepelin, the symptomatology of obsessive-compulsive phenomena was often seen as part of other illnesses and disorders. From one perspective, OCD symptoms combined with emotional disorders and was thus closer to manic-depressive spectrum disorders. From another perspective, supported by Eugen and Manfred Bleuler,[44] obsessions were linked to schizophrenia-schizothymia. More recent concepts place obsessions in the spectrum of psychopathic personalities–such as Ernst Kretschmer's[45] sensitive reaction model or Kurt Schneider's[46] concept of anancastic psychopaths who are insecure of themselves and hypercompensate their inner uncertainty and insufficiency with excessive care, accurateness, and pedantism. Traditionally and up until the revised text of its fourth edition, DSM categorized OCD among anxiety disorders. However, several facts supported its removal from anxiety disorders chapter; for example, that OCD involves emotions that can hardly be subsumed among generalized or phobic anxieties (e.g., incompleteness, guilt, and disgust) and that it does not respond to classical anti-anxiety medications (i.e., benzodiazepines).[25] In ICD-10, just like in DSM-5, OCD is categorized at the core of a separate class of disorders. This process of nosological changes mirrors the historic discussion led in the 19th century about the role of affect, which has remained central throughout the history of OCD.[11]

The fact that today's DSM-5 OCD criteria closely resemble Kraepelin's description of obsessive neurosis reveals a great deal about the development of psychiatric nosology overs 100 years. Today's classification systems do not differentiate psychiatric disorders by causes or etiologies, but mostly by phenomenological (i.e., purely descriptive) criteria. This is basically what Kraepelin did. Since OCD phenomena have persisted over the past 200 years and, as one can assume, throughout the history of mankind, it is not surprising that reapplying a traditional, descriptive approach has led to the recognition of many similarities between DSM-5 and Kraepelin's views. Obviously, a phenomenological approach is less affected by fashions or preferences in psychiatric theory building. Rather, this resemblance suggests that psychiatrists at Kraepelin's time were as good at observing details as psychiatrists today. The conformity in findings and the maintenance of a phenomenological basis for taxonomy also suggest that the ability to observe signs and symptoms and to separate core facts from secondary facts–which in Kraepelin's case was enhanced by an ability to produce clear descriptions–has been the lasting basis of psychiatry.

Disclosure

The authors report no conflicts of interest.

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