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REVIEW ARTICLE

# Kraepelin's concept of psychiatric illness

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Emil Kraepelin fundamentally shaped our current psychiatric nosology. Although much has been written about his diagnostic formulations, less is known about his views on the fundamental nature of psychiatric illness and the goals of psychiatric nosology. We focus on his writings from 1896 to 1903 but also review his inaugural lecture in Dorpat in 1887 and his last two papers, published in 1919–1920. Kraepelin hoped for a 'natural' classification of psychiatric illness but realized that the level of etiologic knowledge required to undergird this effort was not feasible in his own lifetime. This did not stop him, however, from developing a pragmatic approach based on his clinical method of careful description with detailed follow-up, coupled with the available fallible tools of pathological anatomy and, by 1919, genetics and biochemistry. Kraepelin saw psychiatric disorders as multifactorial, arising from the difficult to untangle action and interaction of internal and external causes. He was aware of the problem of defining the boundaries of illness and health but knew this was not unique to psychiatry. Contrary to his stereotype, he was sensitive to the importance of personality factors in psychiatric illness and advocated for their investigation. He also recognized the limitations of his 'clinical method' and was especially critical of classifications based on single prominent symptoms. Ultimately, Kraepelin was a skeptical realist when it came to psychiatric nosology. His goal of developing a consistent 'natural' classification of the major mental disorders has yet to be attained, but his 'research agenda' remains central to psychiatry to the present day.

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## Introduction

More than any other individual, Emil Kraepelin (1856–1926) shaped the way we see the world of psychiatric syndromes. Less well known are his views about the fundamental nature of psychiatric illness, and the associated question of the nature and goals of psychiatric nosology. As Kraepelin was a prolific and clear writer, we quote him extensively. We highlight Kraepelin's position that classificatory nosology is not an end in itself, but rather a stepping stone toward a deeper understanding of the nature of psychiatric disorders. As he summarizes in one of his last articles (Kraepelin, 1920):

> It is natural to turn away from arranging illnesses in orderly well-defined groups, and to set ourselves instead the undoubtedly higher and more satisfying goal of understanding their essential structure.

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This essay adds to the literature on the historical roots of our present nosology by turning to several documents, in particular the sixth (Kraepelin, 1899*a*, *b*), seventh (Kraepelin, 1903–04) and eighth (Kraepelin, 1909–13) editions of Kraepelin's *Textbook of Psychiatry*. These volumes mark three stages in the evolution of Kraepelin's concepts: from his early professorship at the University of Dorpat (now Tartu, Estonia) in 1886–1891, to the chair at Heidelberg University (1891–1903), and finally to his leadership of the Department of Psychiatry at the University of Munich (1903–1922), which culminated in 1917 with the establishment of the German Research Institute of Psychiatry (now the Max Planck Institute of Psychiatry), the world's first dedicated center for psychiatric research. In addition to these volumes, in which he articulated his influential concepts of manic-depressive illness and dementia praecox, we include excerpts from some seminal but generally less well-known sources, including Kraepelin's programmatic inaugural lecture at Dorpat in 1887, his monograph on the psychological experiment in psychiatry (1896), and his late articles on the investigation of the forms of psychiatric illness (1919) and the patterns of mental disorders (1920). Unheralded but important events in psychiatric

historiography were the high-quality English translation of the entire sixth edition, which became available in 1990 (Kraepelin, 1989*a*, *b*), and the five-volume *Lifetime Editions* of Kraepelin in English (Kraepelin, 2002), which reprints the translations of the seventh and eighth editions.

Although we typically read Kraepelin for his exquisite clinical descriptions and well-formed diagnostic views, less attention is paid to his ideas about the nature of psychiatric illness itself and how these views should inform our nosologic efforts. These views, as expressed in his sixth and seventh editions, are the core of this essay.

## Background

Before reviewing this material, we set the stage. Kraepelin's programmatic inaugural lecture in 1887 showed him as a strategic planner and manager of psychiatric research. This lecture is an incisive critique, from an anti-dogmatic, empiricist position, of the 'received knowledge' about mental disorders in the late-nineteenth century (Kraepelin, 1887).

> Our science has not arrived at a consensus on even its most fundamental principles, let alone on appropriate ends or even on the means to those ends. As a result, today the different directions of psychiatric research are able only very marginally to complement and support each other … Every one of countless attempts at classification in the history of our science has involved some intellectual manipulation and violation of the bare empirical evidence … We can derive real hope that in the not too distant future our science, the more it is able to escape the influence of theoretical speculation and fight its way towards sober observation and registration of the facts, will really be able to produce a 'clinical science of mental disorders'. The path to this goal must doubtless lead first to the most extensive differentiation of individual observations possible and to an intensive monographic treatment of all those small variations and intermediate forms that today … are subsumed undifferentiated under the excessively large and therefore meaningless and blurred categories of customary nomenclature.

In his 1896 monograph, he displays even more clearly his pragmatic empiricism (Kraepelin, 1896):

> In psychiatry, more than in any other branch of medicine, interpretation and system dominate, rather than observation … Certainly, no science can avoid generalizations and provisional assumptions, but we must not forget that these have no intrinsic self-sufficient value. They are only means towards an end. Their justification lies only in their potential to raise specific questions that lead to new research … We have to address and answer such questions not from the armchair, not with brilliant insights, but at the laboratory bench, with measurements and observations.

Although skeptical of grand speculative theories, Kraepelin nevertheless embraced, in common with the emerging *zeitgeist* of scientific materialism, a view of the mental disorders as objective 'natural' entities, existing out there in the world, awaiting to be uncovered. He writes (Kraepelin, 1919):

> By analogy with other medical experience, we are justified in assuming that in the case of psychoses we are dealing with several morbid processes governed by natural laws … The primary aim of our scientific efforts must be … to gain the most complete overview possible of the totality of natural disease processes as they present themselves in real life.

Kraepelin's nosological project did not start from a *tabula rasa*. Elaborating on ideas first enunciated by Griesinger (1861) and Kahlbaum (1863), he reinforced the primacy of the clinical method in psychiatry. Kraepelin integrated into a grand synthesis concepts such as 'circular insanity', 'démence precoce' and 'hebephrenia', foreshadowed previously by Falret (1854), Morel (1860) and Hecker (1871). However, he went beyond the confines of clinical description by seeking and building alliances with the 'auxiliary sciences' of psychology, neuropathology, pharmacology and genetics. Furthermore, Kraepelin was the first psychiatrist to be trained in the new discipline of experimental psychology by its founder Wundt (Wundt, 1874), for whom he retained a lasting admiration. Kraepelin realized early the potential of psychology as a research tool complementing, with its objective and quantitative measurements, clinical observation and pathology. In his inaugural lecture (Kraepelin, 1887), he wrote:

> Psychology has become a natural science … The investigative methods of experimental psychology hold out the most promise of at least partially filling in these gaps in our knowledge.

Kraepelin rejected a simplistic reduction of mental life to brain events and psychiatric illness to brain disease. In this lecture (Kraepelin, 1887), he stated:

> We must hold fast to the principle that there exists a parallelism between corporal and mental events which is governed by laws … We must always be cognizant of the fact that this relationship cannot be reduced to the assumption that it is governed by a simple causal relationship, as Griesinger incorrectly did in his famous dictum 'mental illness is brain disease'.

Contrary to ill-informed stereotypes, Kraepelin emphasized the need to consider the complexity and unique constitution of each individual's mental life. He adds (Kraepelin, 1887):

> We, psychiatrists, have to deal not with isolated areas of mental life, but with the whole human being … to gain, to the extent possible, a complete picture of the disturbances caused by the disease process.

Finally, throughout his career, Kraepelin maintained a strong and unswerving emphasis on the primacy of

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clinical observation with unbiased recording of patients' life histories, symptoms, course and outcome. His system of 'counting cards' (*Zählkarten*), which was collected over several decades and contains case summaries and follow-up notes on every admitted patient, represents the first systematic clinical database in psychiatry. As described in his *Memoirs* (Kraepelin, 1987), he used these cards to develop and revise his psychiatric nosologic system through a pattern recognition process, involving iterative permutations and recombinations to detect differences and similarities among cases. In his 1919 essay (Kraepelin, 1919), he wrote:

> It is highly desirable that in every research unit the entire clinical observation material is archived in a usable form … Our concern, therefore, should be to prevent the risk that our hard daily work of examining patients and describing our observations remains largely unutilized and doomed to oblivion in the filing cabinets … In collecting such material, what matters most is not the scope and detail, but the stringent objectivity of the report … A certain protection against the difficult to eliminate bias of personal coloring of the clinical reports is provided by the rule of avoiding entirely any interpretations of the patients' experiences in technical jargon, and instead, simply recording what was perceived.

The extensive documentation that Kraepelin left permitted his original material to be reanalyzed using modern statistical methods. Based on his 721 *Zählkarten* from 1908, Jablensky *et al*. (1993) extracted and coded the clinical data on all cases of dementia praecox and manic-depressive insanity, using a standardized syndrome checklist and computer classification. A concordance of 80.2% was found between Kraepelin's and the computer-assigned ICD-9 diagnoses.

## Kraepelin's concept of psychiatric illness 1899–1903

A good entry to Kraepelin's views about psychiatric illness was his deep pessimism about the possibility of a *complete* nosology of psychiatric disorders. He writes on the progress of our classificatory ambition that

> as we come closer to this as yet tentative goal, it will most probably become increasingly clear that a truly thorough classification of mental disorders will prove impossible. (Kraepelin, 1899*a*)

He notes that we must 'abandon the attempt at complete classification of mental disorders in the Linnean sense for all times' (Kraepelin, 1899*a*).

However, these flaws in the conceptual basis of our nosology should not stop us from moving forward with developing a pragmatic diagnostic system.

> Clearly, then, there is at present no sure foundation upon which to construct a final standard classification. Nevertheless, there is always a demand for some grouping of our knowledge as a basis for practical work. (Kraepelin, 1903–04, p. 116)

But this goal also faced major difficulties. Kraepelin articulates three perspectives that can be integrated in the construction of a psychiatric nosology: 'pathological anatomy, etiology and symptomatology'. (By 'etiology', Kraepelin means identifiable and causative agents of disease.) However, each of these perspectives has limitations.

He writes that:

> Judging from experience in internal medicine, the safest foundation for a classification of this kind [of psychiatric illness] is that offered by pathological anatomy. (Kraepelin, 1903–04, p. 116)

Although this is an attractive basis for nosology, prior efforts to do this with brain pathology have failed and will fail because, as stated in his sixth edition, we lack an 'exact understanding for connecting the anatomical facts with the clinical phenomena' (Kraepelin, 1899*a*, p. 2). In his seventh edition, his conclusion was similar:

> Unfortunately, however, mental disease thus far present with very few lesions that have positively distinctive characteristics, and furthermore there is the extreme difficulty of correlating physical and mental morbid processes. (Kraepelin, 1903–04, p. 116)

Kraepelin then notes that attempts to classify disorders by their causes have also been relatively unsuccessful. In a few cases of illness, we may know the specific cause: alcohol intoxication, head injury, 'violent nerve shocks' and 'hereditary degeneration'. However, even those causes are often non-specific. He writes that we have 'to admit that any single pathogenic factor may make itself known by a great variety of symptoms' (Kraepelin, 1903–04, p. 116). Kraepelin concludes that 'in the overwhelming majority of cases we are completely in the dark about the causes of insanity' (Kraepelin, 1899*a*, p. 2).

However, our ignorance about the causes of mental disorders is, according to Kraepelin, not only a result of the lack of research tools. This problem is deeper and arises because of the 'very nature of mental disorders'. Psychiatric illness arises not only from 'totally unknown internal states of the organism' but also from how the individual responds to 'external dangers'. He concludes that

> the causes of mental disease often work in conjunction with one another, rendering it extremely difficult to ascertain the relationship between the causes and the symptoms. (Kraepelin, 1903–04, p. 116)

Kraepelin notes that 'by far the most frequently adopted approach to the classification of mental disorders has been to classify them according to their clinical symptoms'. This approach is problematic for three reasons. First, it is difficult to distinguish 'essential' from 'coincidental' symptoms. This anticipates Bleuler's distinction between fundamental and accessory symptoms in schizophrenia (Bleuler, 1920, pp. 279–311) and Birnbaum's discrimination between pathogenic and pathoplastic factors (Birnbaum, 1923). Second, he writes that

> The example of dementia paralytica should suffice to teach us that in the field of insanity there are unfortunately no single pathognomonic symptoms. (Kraepelin, 1899*a*, p. 3)

The relationship between casual agents and individual symptoms can be far from straightforward. There is no pathognomonic symptom for dementia paralytica and, despite a single etiology, presentations can be as diverse as mania, depression, psychosis or dementia. Third, many symptoms are non-specific. Kraepelin writes:

> Experience shows that under certain circumstances the same particular [clinical] phenomena can arise in otherwise totally diverging cases, i.e. fever, cough, pains in the chest, etc., in the most distinctly different pulmonary diseases. (Kraepelin, 1899*a*, p. 3)

He also comments perspicaciously on the psychology of psychiatric classification, noting that another weakness of this 'clinical classification' is the tendency to overemphasize the importance of individual symptoms. He writes:

> The grave defect here arises from the fact that there is apt to be an overvaluation of some symptoms resulting in the accumulation in one group of all cases having in common one striking symptom. (Kraepelin, 1899*a*, p. 3)

One example of such an error is, he concludes, treating 'all excited states as mania'.

So, neither pathological anatomy, etiology nor symptomatology will alone help us to 'arrive at a uniform and thorough classification' of mental illness. How should we move forward? His response is pragmatic:

> The more the groups obtained from the different kinds of observation coincide with one another, the greater the certitude that these groups really represent characteristics states of disease. (Kraepelin, 1899*a*, p. 3)

Thus, his recommended research program begins the nosologic process with one approach, and then seeks to cross-validate the proposed categories with the other two. This is, he suggests, the only practical approach 'at the present stage of development of our science'.

Kraepelin also tackles the problem of the definition of psychiatric illness, arguing that a definitive distinction between normality and psychiatric illness is impossible. He writes:

> The necessity of a strict definition of the concept of insanity, of a differentiation of … mental disease from healthy conditions, has, in psychiatry, been the starting point of numerous painstaking efforts, ingenious discussions and subtle argumentations, until the inevitable understanding finally emerged that the question has been incorrectly formulated from the beginning, that there, as in the distinction between physical health and disease, it is in the nature of things that really sharp delimitation and infallible criteria do not exist. (Kraepelin, 1899*b*, p. 203)

Later, in his sixth edition, he notes succinctly 'the impossibility of a thorough distinction between healthy and pathological states' (Kraepelin, 1899*a*, p. 1).

Given this problem, Kraepelin takes an approach to the definition of the boundary of psychiatric illness uncommon in current discussions: the importance of course and life history. He suggests that when a syndrome imposes itself upon a life course, altering significantly an individual's functioning and developmental trajectory, we can then speak with confidence of the presence of illness. He writes, it is

> relatively easy to recognize a mental disorder when it is possible to prove that the suspected phenomena did not always exist but have gradually developed. (Kraepelin, 1899*b*, p. 204)

He then notes the difficulty of deciding on the presence of a psychiatric illness when 'the point at issue is not the occurrence of a pathological process but the existence of a pathological *state*'. It is far easier, he suggests, to determine the presence of an illness by comparing a person's current *versus* prior mental state than to judge based solely upon symptomatic presentation.

In an adjoining section of his text, Kraepelin balances his pessimistic view of the ability of psychiatry to develop a definitive nosology with the awareness of the frequent striking similarity of syndromal presentation of psychiatric illnesses. We are clearly not, he suggests, dealing with an infinite variety of pathologic processes.

> Every psychiatrist knows that we occasionally come across cases which in every respect – their mode of origin, the particulars of the symptoms of disease, as well as their further development – represent a virtually astounding correspondence with one another. (Kraepelin, 1899*a*, p. 4)

Such observations are to be especially valued and, he notes, 'will constitute the natural point of departure for our attempts at classification.' He goes on to outline the next steps in the construction of a typology of

psychiatric disorders: to examine a group of patients who differ only slightly from the classical syndrome, then examine yet larger samples to determine proper boundaries, etc. As might be expected from Kraepelin, he views this effort, which he himself was engaged in, as requiring 'extensive and meticulous observation', which at best will only yield interim solutions. However, he ends this discussion on a more optimistic note:

> It may be hoped that the further development of the clinical approach, turning all characteristics of our subject to account in equal measure, will lead in the not too distant future to a grouping of psychoses which can, with complete equality, be placed beside corresponding achievements in the rest of the medical field. (Kraepelin, 1899*a*, p. 4)

Contrary to stereotype, Kraepelin was no hard reductionist seeking the basis of a psychiatric science solely in the brain. We close this section with a revealing text regarding his views on the interrelationship of brain, mind and psychiatric illness. To define individual forms of psychiatric illness

> we would have to be fully acquainted with the changes taking place in the course of the physiological processes of our cerebral cortex, on the one hand, and with the psychic functional disorders connected with them. (Kraepelin, 1899*a*, p. 1)

That is, an understanding and definition of psychiatric disorders must occur at the level of both mind and brain.

## Kraepelin's view of the way forward: 1919–1920

In this final section, we move to 1919–1920, near the end of Kraepelin's career, to review two of his late articles: a previously untranslated essay articulating his vision of a research program for the delineation of psychiatric disorders (Kraepelin, 1919), and a seminal paper reflecting the evolution of his views on nosology and the nature of mental disorders (Kraepelin, 1920).

In the first of these papers, entitled 'The investigation of the forms of psychiatric illness' (Kraepelin, 1919), Kraepelin makes it clear that his goal is the identification and detailed clinical description of coherent syndromes, not the construction of an overarching, comprehensive hierarchical system of categories.

He begins by stating that

> The primary aim of our scientific efforts must be, on the one hand, to gain the most complete overview possible of the totality of natural disease processes as they present themselves in real life, and on the other hand, to investigate in all detail the clinical peculiarities of those forms of illness that are already known to us. These efforts should first be guided, as usual, by the clinical forms of manifestation. (Kraepelin, 1919)

He then provides a surprisingly candid view of the strengths and limitations of his method of careful clinical evaluation and follow-up:

> The clinical signs of disease are misleading since they appear in similar ways in different disorders, and can change many times in the same case. Their emergence is probably influenced substantially by individual predisposition which is hardly accessible to our insight. Course and outcome are not always unequivocal … Yet despite all these deficiencies, the gradual progression of our experience reveals deep inner relationships between determinant conditions, forms of manifestation, course and outcome. (Kraepelin, 1919)

In trying to understand individual homogeneous syndromes, we must begin, he suggests, by formulating 'the general objectives of our investigation of disease processes … First, to separate the essential and characteristic features of the clinical picture from the accidental or peripheral ones'. He then outlines his approach based on the fallible but useful criterion of cross-sectional commonality of symptoms and signs and longitudinal similarity of course and outcome. He writes:

> An increasingly sharper delineation of a given disease group can be achieved by alternately adding to it, or subtracting from it, smaller or partial subgroups. The observation of the subsequent illness course will always show if the experimental widening or narrowing of the disease form was justified. (Kraepelin, 1919)

He then expresses the hope that validation of this research program would eventually come from the 'auxiliary sciences' of neuroanatomy, biological chemistry and genetics, which might disclose the deeper intrinsic correlations between clinical manifestations and underlying biological processes. Kraepelin has become, since his sixth and seventh editions, more specific in articulating different paths to an etiological understanding of psychiatric illness. He writes:

> The gradual progression of our experience reveals deep inner relationships between determinant conditions, forms of manifestation, course and outcome, as well as the anatomical basis of the individual disease processes … The careful study of the processes of metabolism and blood chemistry will provide us with important clues to the characterization and delineation of natural disease groups … (Kraepelin, 1919)

He again recognizes the limits of his clinical method and expressed optimism that the emerging disciplines of genetics and clinical biochemistry may provide key additional insights into etiology. Therefore, he concludes that

> It is unreasonable to assume that simple clinical observation of patients will eventually lead to far-reaching discoveries. On the contrary, we can expect advances from all those auxiliary sciences whose aim is to penetrate the core of mental disease processes … The study of the laws of heredity

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and of the damages to the germ line will provide important insights into the ways inborn predisposition comes into being. Similarly, the identification of subtle disturbances in the blood and bodily tissues, the endocrine glands and metabolism, can provide us with keys to the understanding of causes of disease stemming from bodily processes. (Kraepelin, 1919)

Any account of Kraepelin's ideas concerning the core issues of nosology and the nature of mental disorders would be incomplete without a brief look at his last published article on 'The patterns of mental disorders' (Kraepelin, 1920). Kraepelin here allows himself to speculate further from the empirical evidence than was his custom. He expresses reservations about the clinical differentiation between schizophrenia and manic-depressive illness, without abandoning his conviction that the distinction is valid.

No experienced psychiatrist will deny that there is an alarmingly large number of cases in which it seems impossible, in spite of the most careful observation, to make a firm diagnosis … It is becoming increasingly clear that we cannot distinguish satisfactorily between these two illnesses and this brings home the suspicion that our formulation of the problem may be incorrect. As I see it, however, we must at all costs adhere to the basic difference between the disease processes concerned.

He then provides a novel perspective on this perennially contentious issue.

This is understandable if we assume that the affective and schizophrenic forms of mental disorder do not represent the expression of particular pathological processes, but rather indicate the areas of our personality in which these processes unfold. The diagnostic significance of the forms of illness would then lie only in the fact that schizophrenic illnesses usually affect different parts of our inner mechanism from those affected by manic-depressive insanity.

Kraepelin introduces the notion of phylogenetically preformed templates of brain responses that can be released and activated by pathological processes. These conjectures bear obvious links to Hughlings Jackson's theory of the dissolution of higher cortical functions (Hughlings Jackson, 1887).

The manifestations of mental disorder … often represent a residue from earlier stages of evolution, resurging all the more strongly because they have been insufficiently controlled by later, more highly developed mechanisms … When higher functions are destroyed, lower psychopathological processes achieve disastrous independence … Many manifestations of insanity are shaped decisively by man's preformed mechanisms of reaction … which may be evoked in the same form by many different causes.

These considerations had profound implications for Kraepelin's views on the nature of schizophrenic disorders: schizophrenic symptoms, as a preformed, general pattern of brain's response, were not disease specific.

Schizophrenic symptoms are by no means limited to dementia praecox. We find them also in varying degree in many morbid processes in which there is widespread destruction of nerve tissue.

Kraepelin's goal of developing a consistent 'natural' classification of the major mental disorders was never fully attained, and his nosology was an open-ended enterprise necessitating periodic updates and adjustments. Towards the end of his career, he outlined a potential, but we would suggest speculative, move away from 'natural disease entities' to 'registers' of mental illness, which remained unfinished yet still awaiting elaboration and critical testing.

## Discussion

This kind of essay is always in danger of degenerating into 'Whiggish' history, of seeking in the past a validation of the current views of the authors. We sought to avoid that bias, but readers should be warned.

Given that caveat, what have we learned about Kraepelin's view of the nature of psychiatric illness? We would suggest five tentative lessons. First, in addition to being a keen clinical observer and great systematizer, Kraepelin was also a sophisticated theoretical thinker. As pointed out by Berrios & Hauser (1988), 'his mind had a truly Kantian bend … he was able to impose an enduring categorical structure upon psychiatric nosology, and to buttress it empirically'. It is impossible to read and ponder his writings without being impressed with his insights and the similarity of the issues with which he then and we now, over 100 years later, struggle. There is, however, an accompanying sense of dismay at the discontinuity in the historical dialog. Instead of having an ongoing conversation with great authors in our field, they are instead curiosities that we have to dig out of old and rarely consulted volumes.

Second, Kraepelin gave great emphasis to the importance of careful clinical observation in psychiatry. However, he also saw clearly the limitations of relying solely on such features. We might summarize his views by stating that detailed clinical and longitudinal observations will be necessary but not alone sufficient for the development of a definitive psychiatric nosology.

Third, in language we might use today, Kraepelin saw psychiatric disorders as multifactorial and typically arising from the action and interaction of a range of both internal and external causes that are very difficult to untangle. This multifactorial etiology, he

asserts, is probably a basic features of the disorders themselves.

Fourth, Kraepelin recognized the tremendous difficulty inherent in developing a definitive psychiatric diagnostic system. Yet, understanding the need to do the best we can with what we have, he advocated the incorporation of biological brain-based processes (brain pathology), in an environmental and developmental context, including causal risk factors, symptoms and, by 1919, the young sciences of genetics and clinical biochemistry. He was aware of the important limitations of each approach but believed that together these distinct approaches could provide more insight than any single one could on its own. In our modern language, when these different key approaches 'cross-validate' each other, we have reason to have at least some confidence in our nosologic categories.

Fifth, Kraepelin was a pragmatist when it came to the fundamental nature of psychiatric nosology. He realized that any understanding of the essential nature of individual psychiatric illnesses was not possible in his day and perhaps not for a very long time. However, this did not stop him from developing utilitarian approaches based on the available tools. At the very end of his life, Kraepelin viewed his own nosology as only 'a temporary way to put part of the observed material into a teachable form' (Trede *et al*. 2005).

Finally, Kraepelin was acutely aware of the definitional problems of mental illness but knew that this problem, of defining a sharp boundary between illness and health, was not unique to psychiatry. He had a view, missing from many definitions discussed today, that the course of psychiatric illness, the deviation from an otherwise unencumbered life, can be vital in discriminating between the oddities of normative psychological functioning and real psychiatric illness.

Kraepelin's goal of developing a consistent 'natural' classification of the major mental disorders was never attained, and his 'research agenda' remains an open-ended enterprise to the present day. Whether we need continued efforts within his paradigm with newer, more powerful tools, or a revolutionary move toward a novel approach to psychiatric illness is now hotly debated. We are all, to a significant degree, his heirs. Therefore, it is important to resist, under the powerful reign of the 'presentism' so common in current science, losing his textured, subtle and deeply informed voice.

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## Declaration of Interest

None.

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