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REVIEW ARTICLE

Conceptual and historical evolution of psychiatric nosology

Awais Aftab[a,b] and Elizabeth Ryznar[c]

[a]Department of Psychiatry, Case Western Reserve University, Cleveland, OH, USA; [b]Ohio Department of Mental Health and Addiction Services, Northcoast Behavioral Healthcare, Northfield, OH, USA; [c]Department of Psychiatry and Behavioral Sciences, Johns Hopkins School of Medicine, Baltimore, MD, USA

ABSTRACT

Psychiatric taxonomies exist within conceptual frameworks which presuppose certain conceptions of psychiatric distress and offer guiding principles. This article provides an overview of the historical development of psychiatric classifications with an emphasis on their methodological assumptions. After identifying roots of scientific psychiatric classifications in the works of Sydenham and Linnaeus and discussing early classification systems, our survey focuses on the Kahlbaum-Hecker-Kraepelin paradigm (with its emphasis on longitudinal course of illness), the Wernicke-Kleist-Leonhard tradition (with its emphasis on neural systems), the development of the ICD and the DSM classifications (with their roots in medical statistics, their pragmatic nature, and their emphasis on descriptive and operationalized criteria), psychodynamic and idiographic perspectives (e.g. the Psychodynamic Diagnostic Manual), and transdiagnostic approaches (e.g. Research Domain Criteria). The central philosophical questions of nosology (descriptive vs aetiological, symptoms vs course of illness, idiographic vs nomothetic, categorical vs dimensional, etc.) have appeared and reappeared throughout this evolution. Ongoing controversies reflect the epistemological and ontological difficulties inherent in defining and classifying mental illness. It may be that no single taxonomy can satisfy all clinical, research, and administrative needs, and that, echoing the ideas of Aubrey Lewis, multiple systems may be required to serve different needs.

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Psychiatric classification; history of psychiatry; philosophy of psychiatry; Kraepelin; International Classification of Diseases; diagnostic and statistical manual of mental disorders; psychodynamic diagnostic manual; research domain criteria

> What Dr. Johnson said of any one who should attempt to define poetry, may very properly be applied to him who attempts the definition of insanity—namely, that such attempts at definition will only show the narrowness of the definer. – Sir John Charles Bucknill and Daniel Hack Tuke (p. 86) (Bucknill & Tuke, 1858)

The question of how psychiatric disorders should be classified is closely related to the question of what psychiatric disorders are. The aim of this article is to provide an exploratory overview of the historical development of classification systems in psychiatry with an emphasis on their conceptual and methodological assumptions. Our task here is not to undertake a 'conceptual history' (à la German Berrios) but rather to examine the historical evolution of psychiatric nosology through a lens that is informed by relevant theoretical considerations. We begin with a discussion of the philosophical foundations of the project of psychiatric classification and conclude with general remarks about the inherent difficulties of psychiatric nosology and cautious speculations about future directions.

Philosophical underpinnings of the project of psychiatric nosology

German Berrios commented that psychiatric nosology is postulated by 'unsaids' and that thinking about and crafting classifications within a given historical period is like playing a game of chess. The movement of the pieces on the chess board is limited by explicit and implicit rules: some moves will not be made because 'they are forbidden by the rules, others because they are patently suicidal, and yet others because they are not fashionable. The same with classifications.' (Berrios, 1999) Classifications are shaped by the scientific and social world in which they exist. The methods and implementation of psychiatric nosology exist within a specific 'paradigm' or 'episteme', and the assumptions of psychiatric nosology, therefore, cannot be taken for granted (Berrios, 1999).

CONTACT Awais Aftab awaisaftab@gmail.com Ohio Department of Mental Health and Addiction Services, Northcoast Behavioral Healthcare, 1756 Sagamore Rd, Northfield, OH 44067, USA

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Foucault's recognition that modern psychiatric classification originated within Enlightenment notions of rationality and representation, and psychiatric nosology's implicit acceptance of Kantian notions of the classifying activity being inherent to the human mind have been discussed by many commentators (Berrios, 1999; Bolton, 2008); however, in depth analysis of these issues is beyond the scope of this article. Philosophers such as Theodor Adorno have criticized many such philosophical assumptions of Western modernity, and Adorno's dialectical critique of assumptions about the primacy of the subject over the object, the consequent impossibility of settled knowledge, and the opportunity this creates for growth of knowledge beyond positivist science (Fagan, 2020) are all relevant to ways in which psychiatric nosology is being discussed in contemporary societies and the ways in which a positivist understanding of psychiatric classification is being challenged by consumer/survivor/ex-patient and 'mad pride' movements (Rashed, 2019).

Many authors have recognized how psychiatric nosology involves a number of conceptual dichotomies and polarities; some relate to the underlying philosophical assumptions and orientation, others to the choice of methodology, the needs which the classifications are intended to serve, and distinctions within classifications. Table 1 describes some of the pertinent polarities that have been commented upon in existing literature (Berrios, 1999; Pichot, 1994; Stengel, 1959), and are of relevance to the discussion in the present article. This is by no means an exhaustive list and many other conceptual polarities relevant to nosology also exist (such as natural vs artificial, hierarchical vs one-level, and exhaustive vs partial). It is also important to note that these conceptual polarities are often contrasts which are emphasized differently by different classifications and are not fundamental ontological distinctions. These polarities are also inter-dependent and relate to each other in complex ways.

Table 2 provides a comparison of various historical psychiatric nosologies with regards to select conceptual polarities. This comparison can serve as a guide for details which are to follow in this manuscript.

The roots of psychiatric nosology within medicine

Classification systems in psychiatry emerged out of the broader effort within medicine to classify disease. In 1682, Thomas Sydenham asserted that 'nature, in the production of disease, is uniform and consistent' and proposed that diseases could be described as distinctly and reliably as plant species (Pichot, 1994). Sydenham understood disease as a set of observable and regular symptoms with predictable course (Garrido, 2019). Following Francis Bacon, he emphasized the importance of empirical observations. Sydenham believed that 'proximal' causes were subject to empirical observation, but 'ultimate' causes were speculative and not observational, and therefore could not be relied upon. In his own classification of mental illness, Sydenham distinguished three types of insanity: 'hysteria', 'mania' and 'melancholia', based on the prominent symptoms (Koutouvidis et al., 1995). He further subclassified them using a mixture of symptoms, contextual factors, resemblances, and aetiological considerations based on humoral theories. For instance, his subtypes of hysteria include hysteria from 'vapors', 'hysteria during climacteric', and 'hysteria resembling kidney stone' (Koutouvidis et al., 1995). Although Sydenham identified a predictable course as a distinctive feature of his notion of disease, it does not appear that course of illness played any substantive role in his classification of insanity (Koutouvidis et al., 1995).

The eighteenth century witnessed dramatic progress in classification in the natural sciences as epitomized by Carolus Linnaeus' taxonomy of nature (Munsche & Whitaker, 2012). Linnaeus, François Boissier de Sauvages, and Rudolph Vogel all created symptom-based classifications of disease and included various psychiatric conditions (Munsche & Whitaker, 2012). Linnaeus provided a symptom-based classification of 'mental disturbances', which were subdivided into disorders of impaired judgement or mental alienation, of imagination, and of irregular desires (Munsche & Whitaker, 2012).

William Cullen published the first widely used system of medical nosology in 1769. He disagreed with symptom-based classification and argued for the importance of underlying causation in determining disease groups (Munsche & Whitaker, 2012; Pichot, 1994). Accordingly, in his classification system, psychiatric disorders were grouped with certain neurological disorders as 'neuroses,' or afflictions of the nervous system (Munsche & Whitaker, 2012). Neuroses were considered one of four main categories of medical illness, though he later theorized that the nervous system or nervous energy undergirded all medical illness (Knoff, 1970). The tension between symptom-based (i.e. descriptive) versus causation-based (i.e. aetiological) classification systems was thus

Table 1. Some pertinent conceptual contrasts and polarities relevant to psychiatric classification.

Descriptive vs Aetiological

Descriptive classifications refer to phenomena that exist at the level of clinical observation and description (details of the clinical presentation, history, signs, symptoms, etc.). Aetiological classifications refer to causal mechanisms (whether identified or hypothesized) that underlie clinical presentations. Medicine in general favours aetiological classifications, but the limiting factor in psychiatry has always been that aetiological mechanisms are poorly understood or are too complex. Since there is a subset of psychiatric conditions with identifiable biological causes (see organic vs functional below), most psychiatric classifications utilize a mix of descriptive and aetiological strategies.

Symptoms vs Course of Illness

Classifications can place different emphasis on symptoms and course of illness to differentiate disorders. Symptom-based systems utilize a constellation of concurrent clinical phenomena to determine diagnosis. In contrast, course-of-illness systems distinguish psychiatric conditions based on how they evolve longitudinally.

Categorical vs Dimensional

A categorical approach classifies psychiatric conditions into separate and distinct categories. Categorical classification presents an in-out style of sorting in which an entity is either a member of a class or not. A dimensional approach classifies various features of psychopathology along several continuous dimensions (or continua). The dimensional approach can be quantitative, but it could also consist of qualitative gradations on a spectrum (such as mild-moderate-severe).

Operationalized Criteria vs Clinical Descriptions/Phenomenology

An operational definition provides criteria by means of which observers can decide, for any particular case, whether the term does or does not apply. The DSM (third edition and onwards) has relied on operationalized criteria, in contrast to most other forms of classifications in history of psychiatry. Clinical descriptions offer 'textbook' accounts of clinical presentations, which the clinicians often rely on in practice using a prototype-matching approach (i.e. how well does the patient's clinical presentation match the 'prototypes' described in the classification). The tradition of clinical phenomenology emphasizes the importance of capturing the richness of subjective conscious experiences of patients.

Idiographic vs Nomothetic

Nomothetic and idiographic are terms originally used by philosopher Wilhelm Windelband to describe two distinct approaches to knowledge. Nomothetic describes a tendency to describe phenomena in terms of general laws and scientific categories, while idiographic describes a tendency to understand unique and specific phenomena. In psychology and psychiatry, the idiographic approach emphasizes the subjectivity and psychological history of the individual. Idiographic vs nomothetic is often used synonymously with persons vs diseases as the object of classification, as a contrast between classifications that focus on the individual (such as the Psychodynamic Diagnostic Manual) vs classifications that focus on disorder entities (such as the DSM).

Monothetic vs Polythetic

In monothetic classifications, all the objects in a class have the same set of attributes. In polythetic classifications, members of a class have many attributes or characters in common, but none are possessed by all members of the class. The DSM diagnostic criteria employ a polythetic approach.

Unitarian vs Separatist

The common idea for unitarians is that there is only one form of mental disorder with an underlying invariant substrate (which could be neurobiological or psychological) that manifests differently in different individuals due to personal and environmental factors. The notion of 'unitary psychosis' is a prominent example. The unitarian stance can sometimes be viewed as 'dimensional' if the underlying disease process manifests in qualitative gradations on a spectrum. Separatists believe that there are distinct psychiatric disorders and distinct disease entities.

'Top-down vs 'bottom-up'

These terms refer to the manner in which classifications are constructed. Top-down psychiatric classifications proceed from clinically observable phenomena to biological/psychological substrates, while bottom-up classifications proceed from direct examination of biological/psychological substrates to clinical phenomena.

Diagnosis vs Formulation

Diagnosis is a descriptive or identificatory label which best explains the patient's signs and symptoms. A clinical formulation conceptualizes a given patient's current presentation in a way that integrates details from clinical assessment utilising a certain theoretical framework. Diagnosis and formulation are not mutually exclusive but different diagnostic frameworks can emphasize them differently. The DSM diagnostic criteria, for instance, are largely agnostic to the issue of formulation, while formulation is built into the very structure of PDM.

Organic vs Functional

Organic disorders refer to conditions where psychiatric symptoms can be attributed causally to a specific cerebral disease, brain injury, or other insult leading to cerebral dysfunction. Functional disorders refer to the converse situation where psychiatric symptoms cannot be attributed to independently diagnosable cerebral or systemic disease. The distinction between organic and functional disorders has been a staple of psychiatric classifications for much of modern psychiatric history, however, this distinction has been subject to great controversy (particularly with regards to the implication that functional disorders have no biological causes) and it was formally removed from the DSM-IV and subsequently from ICD-11.

Statistical/administrative/epidemiological needs vs clinical needs

Statistical, administrative, and epidemiological needs refer to a wide variety of requirements related to collection and tracking of health-related conditions. In its simplistic form, a statistical classification can simply be a list of agreed-upon terms ('diagnostic codes') which can be used to measure morbidity and mortality. Classifications that serve clinical needs are grounded in clinical observations and are intended to assist in creating a differential diagnosis, guiding treatment, communicating with other providers, and conducting clinical research.

Medical vs non-medical classifications

Medical classifications are primarily employed by medical professionals within medical settings and non-medical classifications are designed primarily for use within non-medical settings (such as office-based psychotherapy). Given that psychiatry is a branch of medicine, psychiatric classifications are primarily medical. However, there is increasing recognition that psychiatric classifications do not necessarily serve the needs of the many non-physicians in the psy-professions. PDM is an example of a non-medical classification.

Table 2. Comparison of various historical psychiatric nosologies with regards to select conceptual polarities.

	Kraepelin	Wernicke	Freud & Meyer	DSM – III to 5	PDM	RDoC
Descriptive vs aetiological	Predominantly Descriptive	Predominantly Aetiological	Predominantly Aetiological	Predominantly Descriptive	Descriptive and Aetiological	Predominantly Aetiological
Symptoms vs course of illness	Emphasis on course more than symptoms	–	–	Emphasis on symptoms more than course	–	–
Categorical vs dimensional	Categorical	Categorical	–	Categorical with dimensional features	Categorical with dimensional features (more dimensional than DSM)	Predominantly dimensional
Operationalized vs Phenomenological	Phenomenological	–	Phenomenological	Operationalized	Phenomenological	–
Idiographic vs Nomothetic	Nomothetic	Nomothetic	Idiographic	Nomothetic	Idiographic	Nomothetic

present in the 18th century, and it continues to this day. Importantly, Cullen also believed that nosologies should be based on reliable diagnoses with external signs and similar treatment response (Munsche & Whitaker, 2012).

Early psychiatric classification systems

Early medical classifications and concepts of disease continued to evolve in the 18th and 19th century. Psychiatric nosologies from this time period were generally created by individual psychiatrists ('alienists' and some neurologists) and were often based on a particular theoretical understanding of illness and clinical observation of patients, lending these nosologies some degree of internal consistency with regards to their underlying conceptual assumptions (Table 1). Our contemporary classification systems exist in a historically contingent developmental arc and their origins can be traced back to these early taxonomies (Kendler & Zachar, 2019).

Early psychiatric dichotomies

An important landmark in psychiatric nosology occurred in 1801 when the French physician Phillipe Pinel proposed a classification of 'mental alienation' into four species of melancholia, mania, dementia, and idiotism. He did not see these as separate entities, but rather as modes of expression of a single disease of mental alienation. His disease classifications reflected his patient population—individuals who had been admitted to asylums for the insane—and excluded conditions such as 'hysteria' and 'hypochondriasis.' This conceptual bifurcation along asylum vs. clinic fault lines continued in the late 19th and early 20th century, and the study of 'neurosis' seen in the clinic was taken up by neurologists such as Jean-Martin Charcot and Sigmund Freud (Knoff, 1970). The tremors of this dichotomy can still be felt in the field even as the psychoses and neuroses were reintegrated in the 20th century.

The 19th century also saw the origin of another dichotomy within the field. In 1820, Étienne-Jean Georget distinguished between 'acute delirium,' caused by intoxication or identifiable lesions of the brain or other organs, and 'madness,' which did not have visible lesions on autopsy but was nonetheless caused by changes in the brain (Brown, 1994). This distinction was set up to preserve the legitimacy of psychiatry and Pinel's asylum-based 'moral treatments' for 'madness' (Brown, 1994). It also served as an early precursor of the organic vs functional psychoses distinction (see Table 1 for discussion of the distinction).

There was a proliferation of psychiatric nosologies in the 19th century Europe, and creation of a personal classification of mental illness by an alienist was viewed as an indicator of professional growth and success (Berrios, 1999). These classifications employed a wide variety of different principles, almost all of which are familiar to us. The mid-19th century French classifications, for instance, were based on aetiology (including putative brain anatomy correlations), phenomenology, and course of illness and treatment response (Berrios, 1999).

In addition to categorical classifications, the seeds of dimensional thinking was also noticeable in the 19th century classifications. This dimensionality overlapped with unitary notions of mental illness. For instance, Benedict-Augustin Morel in 1860 conceptualized psychiatric disorders as varying manifestations of 'degeneracy,' ranging on a spectrum from the mildest, 'nervous temperament', to the most severe, 'idiocy' (Pichot, 1994). The idea of 'unitary psychosis' (see Table 1), a derivative of such thinking, was actively adopted by Wilhelm Griesinger and had a tremendous influence on European psychiatry prior to Kraepelin (Pichot, 1994).

Longitudinal course of illness and the Kahlbaum-Hecker-Kraepelin paradigm

Emil Kraepelin's nosology, building on the work of his predecessors Karl Ludwig Kahlbaum and Ewald Hecker, is widely recognized as a watershed moment in psychiatric nosology. Kahlbaum and Hecker recognized that psychiatric diagnostic terms like 'melancholia', 'mania', and 'dementia' represented heterogenous symptom complexes, in the same way that 'abdominal pain' or 'headache' were diagnostically non-specific. They believed that reliance on such diagnoses had only furthered diagnostic confusion and had led to the near-complete failure of neuroanatomical and neuropathological research (which dominated 19th century European psychiatry) to shed light on the aetiology of mental illness. They did not think that aetiological research would yield results until it was guided by clinical, proto-disease entities that considered not just symptoms but the whole course of illness (Kendler & Engstrom, 2017). General paresis of the insane (GPI) served as the paradigm for this way of thinking, because even though the cause was still undiscovered at the time, its characteristic symptoms and course had been well-established. Based on their longitudinal observations of patients, especially adolescents and young adults, Kahlbaum and Hecker proposed the categories of hebephrenia, catatonia, and cyclic insanity. Kahlbaum observed that hebephrenia typically led to rapid development of mental deterioration or feeble-mindedness ('dementia'), while catatonia (which was defined as a motor syndrome with psychosis) and cyclical insanity typically did not despite multiple recurrences (Kendler & Engstrom, 2017).

Emil Kraepelin (1856 – 1926) was equally dissatisfied with failure of neuroanatomy and neuropathology in psychiatry. He believed this failure underscored the need for more informative nosology based on clinical features and adopted the conceptual framework of Kahlbaum and Hecker. Kraepelin placed the 'concept of disease' (*Krankheitsbegriff*) as the theoretical basis for his classification and sought to identify proto-disease entities through an iterative process of careful clinical observation and follow-up, consistent with a separatist approach to classification. Kraepelin was an astute and experienced psychiatric clinician, who kept detailed records and 'index cards' for thousands of patients. At the heart of his mature classification system is the division between dementia praecox and manic-depressive insanity (Kendler, 2020), the former representing disorders with deteriorating courses and the latter without. Kraepelin combined hebephrenia, catatonia, and dementia paranoides into one category of dementia praecox, based on his observation that the dementing process (*Verblödungsprocesse*) was a core feature for all three, and delineated manic-depressive insanity from dementia praecox by the absence of a dementing process. Kraepelin was somewhat ambivalent about chronic delusions-hallucinatory syndrome, and in the 8th edition of his textbook he created a separate category of paraphrenia for chronic psychoses in which there was no deterioration of intellect or personality (Kendler, 2020). It would be inaccurate to say that the course of illness was the sole differentiating criterion; Kraepelin also emphasized differences in the overall clinical presentations and commented on 'the peculiar disturbance of the inner psychic association' in patients with dementia praecox (Kraepelin, 1919). However, Kraepelin also recognized that the same symptoms could manifest in some instances in both dementia praecox as well as manic-depressive insanity, in which case the course of illness provided the means of differentiation between them. He considered clinical course and outcome to be the most important, but not the only, validators of psychiatric diagnoses (Heckers & Kendler, 2020).

Following the popularity of Kraepelin's classification, many of his successor psychiatrists retained his diagnostic categories, but conceptualized them as syndromic entities without an underlying common longitudinal course. For instance, Bleuler (1911) transformed Kraepelin's proto-disease entity of dementia praecox into the syndrome of the 'group of schizophrenias' (Pichot, 1994). Bleuler did so by emphasizing what Kraepelin had described as 'the peculiar disturbance of the inner psychic association' rather than the course of illness and the dementing processes. Kurt Schneider (1950) divided psychiatry broadly into 'disease' and 'abnormal variations', the former containing organic psychoses and endogenous psychoses (schizophrenia and manic-depressive psychoses, whose biological origin was unknown but postulated), and the latter containing personality disorders and reactions to experiences, with both domains requiring distinct approaches to classification (Schneider, 1950). The seeds of Schneider's distinction were present in Kraepelin's nosology as well since Kraepelin accepted the possibility of 'psychogenic' aetiology for some disorders and recognized that disorders could pass over 'without sharp boundary into the domain of personal predisposition' (Kraepelin, 1921).

Neural systems and the Wernicke-Kleist-Leonhard tradition

A contemporary of Kraepelin, Carl Wernicke (1848 – 1905) sought to develop a psychiatric classification based on brain localisation (Ban, 2013; Ungvari, 1993). He hypothesized that psychic impairments stemmed from 'sejunctions,' or disruptions in the interconnections between neural systems (Ban, 2013; Ungvari, 1993), which resulted in hyper-function, hypo-function, or parafunction of the three specific systems: psychomotor, psychosensory, and 'intrapsychic' (the centre between the psychomotor and psychosensory pathways) (Ban, 2013; Ungvari, 1993). Hallucinations, for instance, were assumed to be due to psychosensory hyperfunction anxiety due to psychosensory parafunction melancholia due to intrapsychic hypofunction; mania due to intrapsychic hyperfunction; and catatonia due to psychomotor hypofunction (Lanczik & Keil, 1991).

Wernicke's approach, left incomplete by his death, was continued by Karl Kleist and then Karl Leonhard (Ungvari, 1993). Kleist introduced the notion of 'bipolarity' in reference to episodic psychoses (Ban, 2014). Building on this, Leonhard formalized the distinction between unipolar and bipolar mood disorders, citing early family studies in support of this classification. From Leonhard's perspective, bipolarity was characterized by symptoms in flux and the potential to display extremes whereas unipolarity was characterized by relatively consistent symptoms without variation. Leonhard did not restrict bipolarity to mood disorders, and also applied it to Bleuler's notion of schizophrenias and divided them into 'systematic' (with steady deterioration) and 'unsystematic schizophrenias' (with intermittent periodicity) (Ban, 1982). Kleist and Leonhard also proposed the existence of a third group of 'cycloid psychoses', which they conceptualized as acute, self-limiting psychosis of rapid onset, with the presence of some degree of confusion or distressed perplexity, and a polymorphous and shifting symptomatology. Like Kraepelin, Leonhard also sought to base his nosology on meticulous longitudinal clinical observations (Ungvari, 1993). Kraepelin himself would have considered 'cycloid psychoses' within the category of manic-depressive illness due to the lack of long-term deterioration; however, acute, self-limiting psychoses in the absence of mood symptoms were considered 'atypical' by many psychiatrists and this 'atypical' group was formalized by Kleist and Leonhard as belonging to the category of 'cycloid psychoses' (Jabs et al., 2007).

Wernicke's theory was dismissed by Karl Jaspers as 'brain mythology' and Kleist himself was dismissed by mainstream psychiatry as a 'cerebral localizer' (Ungvari, 1993). While the conceptual foundations of this tradition have long since been abandoned in their original form, Leonhard's unipolar-bipolar distinction in mood disorders was incorporated into contemporary diagnostic manuals. Moreover, contemporary 'biological psychiatry' with its emphasis on neurobiology and neural networks, recognizes the Wernicke-Kleist-Leonhard tradition as an intellectual ancestor.

Meyerian and Psychoanalytic stances towards nosology

The notion that categorical classification is inappropriate for psychiatry has been brought up from the earliest days. It was one of the criticisms raised against Kraepelin's nosology (Kendler & Engstrom, 2018). In 1894, Wilhelm Dilthey introduced the distinction between '*erklaren*' (scientific explanation in terms of general laws) and '*verstehen*' (understanding in terms of individual personality and biography), with the suggestion that psychiatry must be idiographic and not nomothetic (Harrington, 2000; Pichot, 1994). The anti-categorical attitude assumed greater prominence in 20th century with the rise of Meyerian and psychoanalytic ideas. Adolf Meyer's concept of 'psychobiology' and Freudian psychoanalysis conceptualized mental disorders as reactions of the personality to various life circumstances or products of unconscious mental forces and emphasized the uniqueness of the individual (Pichot, 1994; Stengel, 1959). The Kraepelinian view of diagnosis did not fit well with such an understanding of psychopathology and this led to an over-all neglect of psychiatric classification within the psychoanalytic community. Dimensional and unitary approaches were also influential among psychoanalysts like Karl Menninger (1958), who viewed the various types of mental disorders as different only in their quantitative aspects (i.e., in the degree of disintegration of the personality) (Stengel, 1959).

Modern psychiatric nosologies

Beginning in the mid-19th century, the field of medical statistics experienced burgeoning growth driven by the need for accurate reporting of hospitalizations and causes of death. The most widely used current psychiatric nosologies, the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the

International Classification of Diseases (ICD), have their roots in this tradition. Unlike earlier taxonomies, these systems were developed by large organizations (thereby necessitating consensus between multiple stakeholders) for pragmatic purposes and incorporated elements of prior taxonomies. Other contemporary taxonomies, such as the Psychodynamic Diagnostic Manual (PDM) and the Research Domain Criteria (RDoC), were created partly in response to the limitations of the DSM and ICD and are addressed subsequently.

Development of ICD

The need for uniform international categorization was raised during the first International Statistical Congress in 1853 and the first internationally accepted system was adopted by the International Statistical Institute in 1893 (Moriyama et al., 2011; World Health Organization, 1977). Known as the Bertillon Classification because of its main author, Jacques Bertillon, the system was revised numerous times with international input in 1900, 1910, and 1920 (Moriyama et al., 2011; World Health Organization, 1977). This list was primarily focussed on causes of death and listed psychiatric conditions under 'disease of the nervous system'.

In 1946, the newly founded World Health Organization took over international medical statistical classification and two years later published the 6th revision of the international system, which was called the ICD for the first time (World Health Organization, 1977). ICD-6 marked a new era of medical statistics in that a combined morbidity and mortality classification was created with the explicit intent of international cooperation and uniform statistical reporting (Moriyama et al., 2011; World Health Organization, 1977). It was also the first edition to include a dedicated section for mental disorders (Section V) (Clark et al., 2017). The major divisions were for psychoses, psychoneurotic disorders, and disorders of character, behaviour, and intelligence disorders (Stengel, 1959).

ICD-6 and ICD-7 chapters on psychiatric disorders were little more than lists of approved names of psychiatric conditions with code numbers (Clark et al., 2017; Cooper & Sartorius, 2013). At the request of the Registrar General of the United Kingdom (UK), a committee chaired by Sir Aubrey Lewis was tasked with producing a glossary of terms for use in the UK with ICD-8 (Cooper & Sartorius, 2013). Lewis was in favour of using a predominantly descriptive approach to psychiatric classification, and he had a tremendous influence on the classification of psychiatric disorders in ICD-8, which came into use in 1969. The British Glossary, published in 1967, served as a template for the glossary to Chapter V of ICD-8 and was eventually released in 1974 after extensive international consultations (Cooper & Sartorius, 2013). ICD-8 brought all psychiatric disorders together in one section (many organic psychiatric disorders had previously been placed in different sections), expanded several diagnostic categories such as personality disorders and addictions, and was adopted internationally with much success (Kendell, 2001).

DSM-I and DSM-II

Within the United States (US), the first national system for coding psychiatric hospital data was created by the Statistical Committee for the American Psychiatric Association (then named the American Medico-Psychological Association), which in conjunction with the National Committee for Mental Hygiene, published several editions of the 'Statistical Manual of the Use of Hospitals for Mental Disease' between 1918 and 1942 (American Psychiatric Association, 1952; Grob, 1991; Shorter, 2015). This manual was then revised to align with psychiatric codes written in a new national medical nomenclature called 'The Standard Classified Nomenclature of Disease,' published in 1933 and revised twice thereafter. These classifications were primarily for public hospitals and did not serve the needs of other communities. During and after the Second World War, armed forces and veterans affairs psychiatrists recognized that the existing nomenclatures did not suit their purposes (American Psychiatric Association, 1952; Grob, 1991; Shorter, 2015). William Menninger wrote a classification document, termed *Medical 203*, that was adopted by the armed forces (Houts, 2000). The nomenclature relied heavily on Freudian and Meyerian principles, with the majority of the document devoted to various reactions with a small section at the end devoted to 'mental deficiency,' psychotic disorders, and affective disorders (Houts, 2000; Shorter, 2015).

Thus, by the late 1940s multiple distinct nomenclature systems were in use, and the American Psychiatric Association created a new catalogue to supersede them: the 'Diagnostic and Statistical Manual' (DSM). It divided mental disorders into two large groups based on aetiological considerations (neurological vs primary psychiatric), although its

diagnoses were nonetheless descriptive (American Psychiatric Association, 1952). The first group consisted of neuropsychiatric manifestations of neurological conditions, dementias, and intellectual disabilities, while the second group consisted of psychiatric disorders that were conceptualized in terms of Meyerian reactions similar to *Medical 203* (Aragona, 2014; Shorter, 2015). The psychotic disorders carried forward distinctions of involutional psychosis, manic depressive illness, depressive illness, schizophrenia subtypes, and paranoia, but framed them as reactions (American Psychiatric Association, 1952). The DSM-II was released in 1968, amid efforts to align it better with the 8th edition of the International Classification of Diseases, and largely continued the nosology and ontology that was established in the DSM I (Aragona, 2014; Shorter, 2015). Although some commentators (Klerman et al., 1984) have characterized the early DSMs as psychodynamically-influenced, it is increasingly recognized that the manuals were more eclectic in nature and more in line with European psychiatry than has previously been acknowledged (Aragona, 2014; Cooper, 2005).

Mid-20th century: nosological ambivalence and crisis of reliability

In the middle of the 20th century, psychiatric nosology was in flux, with great difference in attitudes among practitioners. Stengel, who was commissioned by the World Health Organization to review existing psychiatric classifications, noted in his 1958 report, 'Recently, the attitude of many psychiatrists towards the conventional type of classification has become one of ambivalence, if not of cynicism. This attitude derives partly from a low estimation of diagnosis … classifications based on the Kraepelinian system have continued to be used in some form or other all over the world. Many psychiatrists have done so under protest and expressing their disbelief in the working hypotheses underlying that system' (Stengel, 1959). He also noted that 'no comprehensive and detailed psychoanalytical classification of mental disorders exists' (Stengel, 1959).

This attitude towards nosology was further enhanced by a wave of research studies which demonstrated problematically poor interrater reliability of psychiatric diagnoses and highlighted the need to place psychiatric nosology at a more stable footing (Aftab & Csernansky, 2020). Studies such as the US-UK diagnostic project also highlighted the alarming discrepancies in international diagnostic practices. For example, one study found major disagreements among trained psychiatrists in the US and UK when they were asked to provide psychiatric diagnoses based on videos of diagnostic interviews with the same patients (Kendell et al., 1971). Such research emphasized the need for diagnostic reliability and prompted the development of operationalized diagnostic criteria.

DSM III and beyond

The DSM-III ushered in a new approach to mental disorders, one in which descriptive, operationalized diagnosis formed the cornerstone of research and practice (Mayes & Horwitz, 2005). It was the culmination of a long history of proposals for the adoption of 'operational definitions' in psychiatry based on observational criteria and was widely considered revolutionary (Aragona, 2014; Fulford & Sartorius, 2009).

The DSM-III based its classification system on the descriptions of clinical presentations which could – it was hoped – be reliably recognized by psychiatrists, no matter their theoretical leanings with regards to the aetiology of psychiatric disorders (American Psychiatric Association, 1980). The putatively atheoretical attitude was reflective of the pragmatic view that reliance on speculative aetiological theories is to be avoided for scientific and operational reasons (Aragona, 2014). Outside of a narrow aetiological sense, it is clear that DSM-III and its successors are deeply embedded within the panoply of theoretical assumptions. Building on the Feighner criteria proposed in 1972 (Feighner et al., 1972), DSM-III enumerated operational criteria for diagnostic categories to enhance interrater reliability, which was then empirically tested in field trials (Aragona, 2014). While the concern for reliability itself was not new (DSM-II and prior manuals had been concerned about it as well), the focus on criterion variance as the target for tackling reliability by means of operationalized criteria was novel (Aragona, 2014). In line with the Kraepelinian aspiration, it was hoped that increased reliability would pave the way for increased validity (Aragona, 2014). DSM-III also utilized a multiaxial system, assigning developmental and personality disorders, medical condition, social factors, and a general assessment of functioning independent axes in order to emphasize their importance in an overall diagnostic assessment.

For the first time, DSM-III included a definition of mental disorder in the manual, defining it as 'a clinically significant behavioural or psychological syndrome

or pattern that occurs in an individual and that is typically associated with distress or disability' (American Psychiatric Association, 1980). It stated in addition that 'there is an inference that there is a behavioural, psychological, or biological dysfunction.' (American Psychiatric Association, 1980) This definition was included partly as a result of controversy surrounding homosexuality and its declassification from DSM-II, which was justified on the basis of lack of distress and disability (Bayer, 1987).

Despite the ostensibly atheoretical orientation of DSM-III, its philosophical orientation was that of the medical model. Robert Spitzer, chairman of the DSM-III taskforce, had wanted to define mental disorders as 'a subset of medical disorders'; this statement was not included due to strong opposition, especially from American Psychological Association (Mayes & Horwitz, 2005). With its operationalized criteria, the DSM-III implicitly assumed the existence of 'disease entities,' and by doing so, DSM-III, like Kraepelin, saw internal medicine as the aspirational model for classification and aetiology as the ideal fruit of this classification (Aragona, 2014). This combination of being atheoretical while adopting a neo-Kraepelinian stance explains the curious phenomenon that DSM-III was widely hailed as a 'biological revolution' despite being avowedly non-aetiological (Aftab, 2020a; Harrington, 2019). The ideological motivations of the creators of DSM-III and the strategic and political manner in which they pursued their cause has also been extensively commented upon (see Hannah Decker's *The Making of DSM-III* for a detailed account) (Decker, 2013).

Developers of the DSM-5 publicly expressed hope that the latest revision would deliver a 'paradigm' shift towards aetiologically based diagnoses, which was the ultimate hope of the neo-Kraepelinian DSM-III (Zachar et al., 2019). It soon became obvious that science had not yet matured to a point where such a paradigm shift may occur, and DSM-5 resultantly ended up as a fairly conservative document, despite the controversies surrounding it. DSM-5 also sought to integrate dimensional constructs (see Table 1 for discussion of categorical vs dimensional) into its nosology; however, there was significant disagreement regarding what that entails (see Zachar et al., 2019 for a detailed discussion). In the end, DSM-5 incorporated soft versions of dimensionality into the manual by emphasising that diagnostic categories exist on spectra and that a spectrum that can manifest at different levels of severity (Zachar et al., 2019). It is increasingly clear that the complex aetiology of psychiatric disorders does not offer any straightforward solutions to questions of nosology; furthermore, reliability remains problematic for many DSM diagnoses – the DSM-5 field trials reported that several diagnoses, including major depressive disorder and generalized anxiety disorder, had poor reliability in the questionable range (kappa = 0.20–0.39) (Regier et al., 2013) – and the failure of DSM to move from reliability to validity has led to a loss of confidence in the neo-Kraepelinian assumptions underlying the manual.

The psychodynamic diagnostic manual

Driven by the concern that the dominance of a descriptive classification has promoted the decline of the idiographic tradition and led to a neglect of conceptualising difficulties in the context of unique personalities, developmental challenges, and life contexts, the psychodynamic community developed the Psychodynamic Diagnostic Manual (PDM) to compensate for the limitations of DSM. The first edition of the PDM was published in 2006 (PDM Task Force, 2006), with the collaborative efforts of members from five sponsoring psychoanalytic organisations. Its second edition was published in 2017. It articulates a psychodynamically oriented diagnosis and classification system that is also grounded in developmental, cognitive, and neuroscience research. PDM is strongly influenced by and draws extensively on the Shedler-Westen Assessment Procedure (Lingiardi & McWilliams, 2015). It uses a multiaxial system and encourages assessment along the following axes: level of personality organisation and prevalent personality styles or disorders (Axis P); level of overall mental functioning (Axis M); symptoms and syndromes and the patient's subjective experience of them (Axis S) (Lingiardi & McWilliams, 2015; McWilliams, 2011). The emphasis of personality assessment as a starting point was driven by the notion that psychodynamic clinicians try to understand a new patient's symptoms in the context of their personality, whether that personality is 'disordered' or not (McWilliams, 2011). It defines personality by emphasising inferred internal dynamics over externally observable traits. Axis S largely follows the DSM-5 classification scheme but describes how having that disorder would be experienced by someone suffering from it, and elaborates on the cognitive, affective, somatic, and interpersonal components of the experience. PDM places itself firmly in the idiographic tradition and describes itself as a 'taxonomy of people' rather than a 'taxonomy of

diseases' (Lingiardi & McWilliams, 2015; McWilliams, 2011). PDM diagnoses are also prototypic and not polythetic, and the manual merges diagnosis and formulation without creating a sharp distinction between the two. PDM has been received favourably by practicing psychotherapists and has earned respect from both psychodynamic and non-psychodynamic practitioners. However, its use has been very uneven, and there are practicing communities where the manual is virtually unknown (Lingiardi et al., 2015).

The modern DSM with its sharp focus on operationalized criteria is thought by many to have created an artificial polarity between morphological classification and explanatory formulation in diagnostics (Frances & Cooper, 1981; Sadler, 2005). An impoverished understanding of diagnosis as excluding formulation (an understanding that DSM has done little itself to counter) has led to a counter-reaction in the psy- communities in the form of the idea that diagnosis should be abandoned in favour of a psychological formulation. Such ideas are particularly notable among some factions in the UK, and have been endorsed by the British Psychological Association, with Power Threat Meaning Framework (PTMF) offered as a potential replacement to diagnosis (The British Psychological Society 2020). In the US, Division 32 (Society for Humanistic Psychology) of American Psychological Association has also supported similar ideas (Society for Humanistic Psychology, 2020).

The research domain criteria

Mounting evidence that DSM categories do not map onto genetic and neurobiological constructs has raised concern that an excessive reliance on DSM categories has prevented the field from advancing pathophysiological understanding of mental disorders. Towards that end, the US National Institute of Mental Health launched a new transdiagnostic research paradigm in 2009: the Research Domain Criteria (RDoC) (Insel et al., 2010). RDoC conceptualized mental illnesses as disorders of neural circuits, hoping that data from clinical neuroscience and genetics will yield biosignatures that will inform future nosologies (Insel et al., 2010).

RDoC in its original form privileged neural circuits as the preferred mode of analysis, though it also allowed for other 'downward' (genetic and molecular/cellular) and 'upward' (behavioural, environmental) forms of analysis (Aftab & Csernansky, 2020). The central importance given to neural circuits has been somewhat de-emphasized in subsequent years, partly in response to criticisms of 'neural reductionism' (Paris & Kirmayer, 2016).

The RDoC applies its units of analyses (from genes to psychosocial factors) to several predetermined neuropsychological domains—negative valence systems, positive valence systems, cognitive systems, social processes, arousal and regulatory systems, sensorimotor systems—in the form of a matrix. Each domain is subdivided into constructs; for example, positive valence systems include the constructs of reward responsiveness, reward learning, and reward valuation (National Institute of Mental Health, 2020). While RDoC generated tremendous interest, especially in the research community, more than a decade later, fruits of this line of research are yet to be seen (Rogers, 2017). To the extent that behavioural and mental dysfunctions are emergent properties supervenient on neurobiology, a central focus on identifying neurobiological dysfunction may be misplaced (Wakefield, 2014). RDoC may be risking criticisms of 'brain mythology' similar to the criticisms faced by Wernicke's nosology based on cerebral localisation. RDoC remains a promising framework for research and has encouraged the use of transdiagnostic measures. While any conclusions about the impact of RDoC on future psychiatric nosology would be premature, preliminary results suggest that any optimism needs to be heavily tempered.

The hierarchical taxonomy of psychopathology

Another novel dimensional and transdiagnostic approach to nosology that has been proposed is the Hierarchical Taxonomy of Psychopathology (HiTOP)—which uses a quantitative nosology based on factor analysis for psychological/behavioural phenotypes. The nosology rests on six spectra—internalizing, thought disorder, disinhibited externalising, antagonistic externalising, detachment, and somatoform—that can be further subdivided into subfactors and symptom components (Kotov et al., 2017). Although HiTOP offers a promising approach for transdiagnostic research, it has yet to see widespread adoption, and concerns exist that it may be too impractical for routine clinical use.

Conclusions

> It may be readily surmised that where the best thinkers have failed to produce an unexceptionable classification, the failure must be due to some inherent difficulty of the subject. –Edward Charles Spitzka (p. 118) (Spitzka, 1887)

> The more one thinks about their application to mental disorders the more one realizes that the problem here is not only our lack of knowledge about taxonomy but the possibility that psychiatric objects may not be susceptible to classification at all. –German Berrios (p. 193) (Berrios, 2014)

As demonstrated by these similar sentiments spoken 125 years apart, while psychiatric classification systems have evolved, their central epistemological and ontological challenges have reappeared throughout the years: Should psychiatric disorders be grouped by symptoms or by cause? What qualifies as a psychiatric disorder? Should disorders be defined by subjective experience or by objective criteria? Should the focus be on the individual or the disease entity? Is there a difference between disorders with an identifiable biological 'lesion' and those without? Are psychiatric disorders distinct entities or points along a spectrum? These questions remain unresolved and reflect the underlying challenges of defining and classifying psychiatric disorders.

On the relationship between the principles of scientific classification and the field of psychiatry, Berrios brings up three possibilities: (i) these principles apply to psychiatry *tout court* (without modification); (ii) these principles apply to psychiatry *mutatis mutanda* (with necessary modifications); or (iii) these principles do not apply at all, for so doing would be an instance of *ignoratio elenchi* ('missing the point') (Berrios, 1999). This last possibility, that psychiatric phenomena may not be valid objects of scientific classification, Berrios describes as being largely 'unthinkable' within the episteme in which psychiatric nosology currently exists (Berrios, 1999). The difficulties and uncertainties that psychiatric nosology faces, many of which we have touched upon in the course of our discussion, do not necessarily represent a 'failure' of the psychiatric project (although, as Berrios notes, that is a possibility) but could also represent a 'discovery' of sorts of the limitations of the project of scientific classification itself. Such a realisation could conceivably help improve strained relationships between psychiatry and other stakeholders, facilitate pluralism in practice, and enhance clinical care.

It is well-recognized that the DSM and ICD do not adequately address many fundamental philosophical issues of nosology (Clark et al., 2017). The wide acceptance of the DSM-III and ICD-10 has largely been due their success at providing a common language in psychiatry and is not necessarily reflective of a wide acceptance of their underlying neo-Kraepelinian assumptions (Pichot, 1994). Their utility is further reinforced by their widespread adoption by governments, insurance companies, courts, and funding agencies. As shown, DSM is a product of diverse historical threads and its nosology is driven more by pragmatic needs and historical contingencies rather than internal consistency. Allen Frances has commented that psychiatric conditions have historically been incorporated into diagnostic manuals 'by accretion and practical necessity, not because they met some independent set of operationalized definitional criteria' (Frances, 2013) and Peter Zachar (Zachar, 2014) has noted that gradual expansion of psychiatric nosology driven by pragmatic considerations has resulted in an 'imperfect community composed of disorders that are alike in many ways, but there is no one way that they are all alike' (Aftab, 2020b). The intense controversy surrounding the development of DSM-5 has revealed that the conceptual waters remain as turbulent as ever, and there is widespread dissatisfaction with these official classifications. A consequence of this is an escalating search for alternative nosological approaches.

Aubrey Lewis' distinction between public and private classifications is useful in this context (Fulford & Sartorius, 2009; Stengel, 1959). Public classifications are shared and allow for uniformity of usage, meaningful comparisons of findings, and epidemiological work. Private classifications, in contrast, are used by particular groups for particular purposes. Lewis suggested that public classifications should be operational and descriptive, and this view guided his foundational work on ICD-8, leading directly to our contemporary descriptive classifications. The success of DSM and ICD has led the profession to ignore that classifications other than symptom-based classifications can be needed for other purposes, and that private classifications can meaningfully co-exist with public classifications. It is plausible that the dominance of DSM and ICD will be chipped away in a piecemeal fashion, and we may give up the notion that a single official classification can serve the psy-professions in all the various clinical, research, administrative, and legal functions. The future of psychiatric classification may very well be a pluralistic one, but one can only hope that this pluralism of psychiatric nosologies will be principled, methodological, and more explicit about the philosophical underpinnings than its predecessors.

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ORCID

Awais Aftab http://orcid.org/0000-0002-3515-3993

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