

Psychiatric disorders: natural kinds made by the world or practical kinds made by us?

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The concept of natural kind, a term of art in philosophy, is being increasingly appropriated by mental health professionals (1-4). First introduced in the 19th century, the notion of a natural kind has benefited from sustained philosophical attention over the past forty years (5-7). Newly developed ways of thinking about the concept are worth taking note of in psychiatry.

Typical examples of natural kinds are chemical elements such as gold, biological species such as tiger, and infectious diseases such as tuberculosis. These all: a) are naturally occurring as opposed to artificial; b) have clearly demarcated boundaries separating members of the natural kind from non-members; c) possess observable features that are causally produced by internal properties; and d) these causal properties can be used to objectively validate category membership. Also, studying what instances of a kind have in common allows us to know what to expect of the kind in general.

Few would claim that currently available psychiatric taxonomies classify natural kinds. Diagnostic co-occurrence and use of the *not elsewhere* and *not otherwise specified* codes are widespread, underlying pathological processes shared by all cases have not been discovered, and no diagnostically reliable biomarkers have been identified. In addition, treatments are frustratingly non-specific. A psychiatric taxonomy of natural kinds is at present only an aspirational ideal (8,9).

THE ESSENTIALIST BIAS AND TAXONOMIC THINKING

In an essentialist framework for species taxonomies, there are tigers and lions, but no ligers. What makes something a “real” lion is a set of hidden properties – called the essence or nature of the species. To be an instance of a natural kind is to possess the essence of the kind.

Essentialism retains perennial importance because humans are readily disposed to think about biological categories in terms of essences (10). In fact, developmental psychologists have discovered that children begin to adopt essentialist assumptions about category membership in preschool. Children see category membership as fixed, rooted in hidden, unchanging causal properties, and more useful than appearances for making inferences about expected behavior (11,12).

The introduction of empiricism by thinkers such as J. Locke initiated a long and productive critique of essential-

ist metaphysics in modern philosophy (13-15). The empiricists contended that the notion of an essence is an empty abstraction. Locke was inspired not only by the scientific revolution and 17th century English politics, but also by his own work as a physician. He learned the craft as a collaborator of T. Sydenham. Together, they believed that medical classifications should be based upon observable natural histories of diseases rather than theorizing about hidden causes/essences (16,17).

The most philosophically important rejection of essentialism among scientists is found in Darwin’s theory of evolution. According to Darwin, rather than being a fixed type in which every member of a species shares the same essence, a species is a population of individuals that vary. In fact, many phenomena in nature contradict our essentialist assumptions – including the production of tiger/lion hybrids such as ligers and tigons (18).

Scientific taxonomies are useful simplifying devices. Information not contained in a taxonomic category is minimized or ignored – and confusing variation is thus reduced. In obtaining a basic scientific education in chemistry and biology, students are taught simplifying taxonomies. Such taxonomies cohere with student’s pre-existing essentialist assumptions and further reinforce those assumptions. These simplifying taxonomies are afterwards taken to be scientific ideals. When a domain such as psychiatry is subsequently encountered, attempts to taxonomize it are slotted into this customary framework and essentialist assumptions begin to function as a cognitive bias – an *essentialist bias*. Features that make all instances of a category the same are emphasized. Gaining expertise in a domain makes the variation within categories more noticeable, but the pull of essentialism in taxonomic thinking remains hard to resist.

A NON-ESSENTIALIST VIEW OF NATURAL KINDS

In the 1970s some philosophers began to argue that species categories should not be viewed as natural kinds (19,20). To keep the concept of natural kind relevant for species taxonomies, R. Boyd extended its boundaries to encompass an alternative non-essentialist view called the *homeostatic property cluster* concept (21,22). According to this view, a natural kind represents a set of co-occurring features that reliably cluster together because of shared causal processes, but there is no set of features that all members of the natural kind must possess. For example, certain anatomical structures, body

type, and predatory behaviors form a homeostatic property cluster called tiger about which we can make inferences.

Such kinds are natural because they are produced by similarity-generating causal mechanisms (23). The relevant mechanisms that maintain the cluster as a whole may be internal (e.g., a genome), but they can also be external (e.g., availability of mates). Variations in the relevant causal process (a lion parent) will create variations in the outcome. As a result, there may be individuals who are subject to some but not all of the usual causal processes, and whether or not they should be considered members of the species is indeterminate.

Given the possibility of indeterminacy in classifying species, one should not be surprised that similar difficulties arise in the classification of psychiatric disorders (24). For instance, consider the difference between intense grief and mild depression. Although we can conceptually distinguish between the two, there are borderline cases that share some but not all features of both. In practice, making a differential diagnosis requires a judgement call. If clustering is imperfect due to variation in the causes, additional background considerations are needed to inform diagnostic decisions. For instance, a past history of depression might shift an indeterminate case in one direction or another.

Complicated cases also contradict the typical essentialist picture. Such cases can manifest symptoms from the depression, anxiety and somatic symptom clusters, the obsessive-compulsive spectrum, the domain of personality disorder, and occasionally the psychoses. The symptom configurations for these cases evolve over time, with certain symptoms coming into the foreground, and then receding into the background as other symptoms take their place. Interactions between symptoms can also generate new symptoms not on the usual criteria lists (25). Viewing a complicated symptom network as an assortment of distinct disorders is probably reifying ICD and DSM categories more than is justified.

Despite the availability of this liberalized view of natural kinds, it is likely that the simplifying assumptions of essentialism will continue to serve as aspirational ideals in psychiatric thinking. The ambition to definitely categorize what disorder a patient “really” has is stronger when essentialist assumptions are activated. Indeed, we can expect each new cohort of students to enter psychiatry with essentialist biases (26,27). As students are taught to think about patients in terms of psychiatric categories, they will be disposed to see the categories as more invariant across cases than they actually may be, and to assign extra “metaphysical” relevance to hidden causal properties.

The homeostatic property cluster model, however, better coheres with clinical expertise and deserves to be actively promulgated in psychiatric education as an alternative to our instinctive essentialism. The task is not hopeless. Psychological/mental concepts are typically less subject to essentializing than biological concepts (28) and essentialist

inferences about taxonomic categories can be attenuated with clinical experience (29). With attention to these issues during training, professionals might be less likely to become cynical about classification after clinical experience makes the inadequacies of essentialist expectations more evident.

PRACTICAL KINDS AND TAXONOMIC DEVELOPMENT

Natural kind concepts are supposed to represent what exists independent of our classifications, but in application, concepts for disorders become subject to our goals and interests. The clinical goals of practitioners and patients, the various scientific goals of researchers, philosophical theories about the nature of disorders, the priorities of health service administrators and social policy analysts, and commercial interests, for better or worse, have all played a role in how constructs for psychiatric disorders are developed. No one would consider this situation scientifically ideal, but the complexity of psychiatric phenomena makes it hard to avoid.

When the development of a classification requires a balance between competing background assumptions and goals, psychiatric constructs are better thought of as *practical kinds*. The homeostatic property cluster model recognizes situations where classification can be indeterminate as exceptions to a rule, but says little about the role of background assumptions and goals in selecting “good” classifications. In psychiatry, indeterminacy is more than an occasional exception. It exists at the boundary of the normal and the abnormal, and between conventionally recognized symptom configurations and a more extensive, interconnected symptom space (30,31). Such is the inspiration behind the claim that psychiatric disorders are practical kinds.

What have philosophers learned about the kinds that should be taken note of in psychiatry? H. Putnam has observed that to ask whether kinds are made by the world or made by us is too black-and-white a question (32). As tools that we use in our work, concepts are what Locke called the workmanship of human understanding. Concepts for psychiatric disorders are constituted by discoveries and decisions. There is an interaction between what the world produces and what we find useful to notice. The *concept* of natural kind orients us to regularities in psychiatric phenomena that exist irrespective of our wishes or preferences; they are the result of causal processes that scientists seek to discover. The *concept* of practical kind orients us to the variety of the decisions we make in order to classify an indeterminate world.

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