The nature of psychiatric disorders

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A foundational question for the discipline of psychiatry is the nature of psychiatric disorders. What kinds of things are they? In this paper, I review and critique three major relevant theories: realism, pragmatism and constructivism. Realism assumes that the content of science is real and independent of human activities. I distinguish two "flavors" of realism: chemistry-based, for which the paradigmatic example is elements of the periodic table, and biology-based, for which the paradigm is species. The latter is a much better fit for psychiatry. Pragmatism articulates a sensible approach to psychiatric disorders just seeking categories that perform well in the world. But it makes no claim about the reality of those disorders. This is problematic, because we have a duty to advocate for our profession and our patients against other physicians who never doubt the reality of the disorders they treat. Constructivism has been associated with anti-psychiatry activists, but we should admit that social forces play a role in the creation of our diagnoses, as they do in many sciences. However, truly socially constructed psychiatric disorders are rare. I then describe powerful arguments against a realist theory of psychiatric disorders. Because so many prior psychiatric diagnoses have been proposed and then abandoned, can we really claim that our current nosologies have it right? Much of our current nosology arose from a series of historical figures and events which could have gone differently. If we re-run the tape of history over and over again, the DSM and ICD would not likely have the same categories on every iteration. Therefore, we should argue more confidently for the reality of broader constructs of psychiatric illness rather than our current diagnostic categories, which remain tentative. Finally, instead of thinking that our disorders are true because they correspond to clear entities in the world, we should consider a coherence theory of truth by which disorders become more true when they fit better into what else we know about the world. In our ongoing project to study and justify the nature of psychiatric disorders, we ought to be broadly pragmatic but not lose sight of an underlying commitment, despite the associated difficulties, to the reality of psychiatric illness.

Key words: Psychiatric disorders, realism, pragmatism, constructivism, homeostatic property clusters, DSM-5, ICD-10

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A foundational question for the discipline of psychiatry is the nature of what we treat and study: psychiatric disorders. What kinds of things are they? This question can be fruitfully addressed from several perspectives. We could, for example, ask about their etiology and contribute to the long running argument about whether they are better understood from a psychological versus a biological perspective. We could explore their historical development and the differentiation of psychiatric from neurologic conditions. But I will not be taking such approaches here. Rather, my questions are more philosophical (or, to be more precise, metaphysical) in nature.

I will review and critique three major theories about the nature of psychiatric disorders: realism, pragmatism and constructivism. This is not an exhaustive list of the theories applied to this question. But together they do cover most of the major issues. I will at times adopt a descriptive voice, trying to outline and contextualize these three positions. However, I will also sometimes be more autobiographical and proscriptive, exploring both how I have considered these theories over my career and how I view them now.

I posit that these three theories of psychiatric disorders can be placed on a single dimension, best conceived as a scale of "realness" (which might be defined, in philosophy talk, as "existence in mind-independent space"). I will complicate this typology by four further refinements, in an effort to find an optimal approach to understanding the nature of psychiatric disorders. I do not seek to provide a definitive resolution to this very difficult question, but rather hope to illuminate the range of relevant issues.

REALISM

Realism is a major position in the philosophy of science which assumes that the content of science is real in a way that is independent of human conceptions and activities. It is the common sense position accepted by most working biomedical scientists, who, if asked about the nature of the subject of their studies (be it genes, the clotting cascade, or types of autoimmune disease), would reply: "Of course, the things I work on are real. What a silly question!". This was a position I would have endorsed whole-heartedly when I was a resident and young assistant professor working on biological theories of schizophrenia. "Of course, schizophrenia is a real thing".

I want to discriminate between two flavors of this realist position. The first is based in the hard science of chemistry, and the second in biology. For the first, the paradigmatic scientific construct or "kind" is elements in the periodic table like carbon, nitrogen and oxygen. They are wonderful in the clarity of their "mind-independence". We can be confident at any time and place in our universe, if a civilization of sentient beings develops far enough, that they will discover something structurally isomorphic to our periodic table. That is, our periodic table and the elements in it are a deep truth about our world entirely independent of humans. We could all disappear tomorrow and their reality would be unperturbed.

Elements in the periodic table illustrate another important feature of realistic kinds: they can possess an essence. Elements of the periodic table have essences. That is, once you know the atomic number (not, as some first thought, the

atomic weight), you can predict most of what you need to know about an element: its melting point, its density, its ability to combine with other elements, etc.. A helpful metaphor for an essence is a "level" of scientific knowledge which you can grab, knowing that it tells you most of what you want to know about your particular object of study. For atomic elements, that level is the atomic number.

For the second flavor of realism, the paradigmatic kind is the biological species. Species differ from elements in four important ways. First, they have fuzzy boundaries. The features of a species typically vary over its range, and at its limits the dividing line between sister species can become indistinct. The borders between elements, instead, are sharp. Second, the existence of a species is much more conditional than that of an element. The species we know about only exist in our biosphere and are temporally limited, existing only between their emergence and extinction. An element such as hydrogen is universal and practically timeless. Third, unlike elements, species have no essence. There is no one thing that defines a species that makes a walrus, robin or drosophila. Fourth, not all members of a species are identical to one another, as are atoms of any element.

Clearly, the biological flavor of realism is more appropriate for psychiatric disorders than chemistry-flavored realism. Psychiatric disorders are much more like species than elements. However, both flavors of realism share a critical feature: they postulate that scientific kinds exist independent of our efforts to study them. That is, we could "discover" a new psychiatric disorder in the same way a hitherto unobserved species of bird is found in a rain-forest. We do not "create" our disorders; rather we find them in nature.

PRAGMATISM

A common-sense summary of pragmatism in psychiatry would be as follows:

> As a working scientist or clinician, I just want to predict and control features of the world. I want a psychiatric diagnosis that tells me what treatment to use, is good at predicting course of illness, and correlates well with important biomarkers. What the hell do I care about metaphysics and vague philosophical phrases such as "mind-independent reality"!

Pragmatism eschews metaphysical speculation and is a close cousin to a view in philosophy of science called instrumentalism, which sees key concepts in science as "instruments" or tools with which to understand the world. In common sense terms, instrumentalism judges scientific categories by whether they work or not, not on whether they are real or not.

Pragmatism is a coherent, sensible, moderate position that has been well articulated by Zachar[1-3]. As will be clear later, I continue to struggle to find a comfortable space for psychiatric disorders somewhere between realism and pragmatism. But for now, I want to focus on one important limitation. Pragmatism, in its classic form, is unambitious and is reluctant to make claims about the underlying reality of psychiatric disorders. This for me is problematic.

To explain why, I have to admit to two problems with the pragmatic approach to psychiatric disorders that are not entirely philosophical in nature. First, I have spent many years of my life caring for the psychiatrically ill and speaking with their families. Taking a "pragmatic" approach to psychiatric illness (and to all the tremendous pain it causes to the patients and their relatives) to this day feels disrespectful, as if I am not fully acknowledging the reality of their illness. This position is, at its essence, an ethical one. Over history, many cultures have done a poor job of properly seeing the other in those who are psychiatrically ill. It has been too easy to deny their humanity, to say they are not really sick. I continue to feel an obligation to counter this position and argue for the reality of mental illness.

Second, I am deeply committed to the status of psychiatry as a legitimate biomedical discipline deserving of respect, and more funding for our clinical and scholarly activities. Surgeons do not spend time or energy worrying about the reality of gall stones, infected appendices or subdural hematomas. Does taking a pragmatic approach to psychiatric illness help us in our debates about respect and resources with our medical and surgical colleagues, some of whom are disinclined to see anything psychiatry does as "real"? In my scientific worldview, the mind is part of the body and its disorders are just as real. It would be inconsistent, or an admission of defeat, to regard psychiatric disorders as being of a different status than classical physical-medical disorders. As public advocates for our field and our patients, defending the reality of psychiatric illness is important.

CONSTRUCTIVISM

For most working psychiatric researchers and clinicians, claims for the constructivist nature of psychiatric disorders are "fighting words", because this perspective, best articulated in the anti-psychiatry writings of T. Szasz[4], is associated with attempts to delegitimize our field. To consider constructivism objectively, we need to back away from this initial emotional and defensive reaction.

What are socially constructed things? They are the sorts of ideas and things that humans make like euros, passports, narrow ties, and hip-hop music. To say something is socially constructed is *not* to say that it is not "real" in a practical sense. That is, having euros in my wallet allows me to buy things, and having a U.S. passport allows me to travel to Norway. Nevertheless, to say that something is socially constructed is to say that it would not exist without the activities and social conventions of human beings.

Before we tackle the difficult question of whether psychiatric disorders could be socially constructed, let me make a

weaker and hopefully less controversial claim about the role of social processes in the construction of psychiatric disorders. Consider the history of post-traumatic stress disorder (PTSD) in DSM-III[5]. Traumatic reactions to the barbarity of warfare had long been recognized. But the decision to add PTSD to DSM-III arose out of a complex, historical context involving the Vietnam Veterans Against the War and politically involved prominent U.S. psychiatrists who believed that suffering Veterans were not being recognized or adequately treated by the country they served. The historical record suggests that the decision to include PTSD, with its specific criteria, was substantially influenced by the social and political environment in the U.S. in the late 1970s associated with the Vietnam War.

Consider a more recent example. Zachar and I have recounted the story of the intense debates from DSM-III-R through DSM-5 about the inclusion of a menstruation-related mood disorder[6]. After forceful and often public debate, the relevant DSM committees for DSM-III-R and DSM-IV decided to exclude such a diagnosis from the main manual, including it instead in an appendix. In DSM-5, by contrast, with little fanfare, it was included in the main document. After interviewing most of the main contributors to this debate, we concluded that the accumulating scientific evidence in favor of the validity of what has become premenstrual dysphoric disorder (PMDD) played some role, but at least as important were two external "social" factors. First, in 2000, the U.S. Food and Drug Administration approved the popular antidepressant fluoxetine under a new trade name for the treatment of PMDD. This provided a very important external validation of the diagnostic entity. Second, to paraphrase one of our interviewees:

> Feminism had changed. The new generation of feminists was not nearly so threatened by this diagnosis. Mainline women's magazines carried stories about PMDD. If diet and relaxation did not work, it was fine to visit your doctor and ask for treatment.

I could multiply examples. My experiences over many years and hundreds of hours of DSM deliberations (from DSM-III-R through to DSM-5) have disabused me of the notion that we can revise our nosology in a "purely" scientific process. Although I am no anti-psychiatrist, to argue that social factors do not impinge in a substantial way on our nosology is not a sustainable position. Critically, I am not saying that social forces created PTSD or PMDD. Rather, I assert that social forces influenced the debate about the recognition of these disorders in our official nosology.

Before we feel too much embarrassment about this, it would be salutary to note that the "harder" sciences are not devoid of such influences. Hull[7] documents the long, acrimonious and highly politicized debates among competing schools about the optimal approach to biological taxonomy. More recently, a drama unfolded about the struggle about the definition of a planet in the International Astronomical Union. This debate, which concluded with the down-grading of Pluto to a "dwarf-planet", eerily resembled certain modern nosologic debates in psychiatry[8].

Let us turn to the harder question of true "social construction" for psychiatric disorders. Consider the epidemic in the U.S. in the 1990s of multiple personality disorder (MPD), which was often accompanied by repressed memories of bizarre ritual sexual abuse[9]. While I cannot possibly do justice to this complex story here, there is good reason to think that a proportion of these individuals had iatrogenic disorders – ones that were actually "constructed" from the expectations of their therapists[9,10]. I do not mean to imply that such individuals were not in some ways "disordered" when they sought treatment. Rather, I argue that in most if not all such cases the specific syndrome of MPD and associated "recovered" memories was constructed by patient-therapist interactions. A similar story has been told about the grand hysteria constructed under Charcot's care in Paris in the late 19th century[11]. To please the professor, his patients became actresses displaying the expected sequence of symptoms and signs before his public audience.

Socially constructed psychiatric disorders have existed in our history. I would however argue that such situations, in which the social processes that created the disorder did not track anything true about the world, are rare. By contrast, socially influenced disorders are common, as our nosologic processes typically involve important social and cultural elements. We do not ever want our disorders to be theoretical fictions like (at least most cases of) MPD. For disorders like PTSD and PMDD, which we learned to see at one point in our history, we should routinely assure ourselves that they were "out there" before we learned to see them and included them in our nosology.

TWO ARGUMENTS AGAINST REALISM FOR PSYCHIATRIC DISORDERS

We have completed a brief review of our three traditional positions on the metaphysical nature of psychiatric diagnoses: realism, pragmatism and constructivism. I now want to complicate this picture further. At first blush, realism is very attractive. Pride in our specialty should want us to declare that our disorders are real. We experience the suffering they bring to our patients and their families. What could be better proof of their reality?

However, I want to counter this enthusiasm by reviewing two strong arguments *against* realism as a plausible model for psychiatric disorders: pessimistic induction and historical contingency.

Pessimistic induction

The philosopher Kuhn articulated the essence of the pessimistic induction argument as follows: "All past beliefs about nature have sooner or later turned out to be false"[12]. To be

more specific, all scientific theories postulate the existence of entities. Consistently, over the history of science, as older theories have been replaced by newer theories, the entities of the older theories, often long regarded as real, are frequently discarded and judged to not exist at all. We no longer teach about ether in physics, phlogiston in chemistry, or the humoral theory in medicine or psychiatry. Sitting in the present, we look back at earlier theories, now falsified, and conclude that the entities referred to by these theories do not in fact exist, and therefore are not, in any sense, real.

If the pessimistic induction argument is true – that past scientific theories have typically been disproven and their key constituents shown to not exist – common sense suggests that it will also be true in the future. That is, looking back from the future, won't the scientific constructs that we now regard as real likely be replaced and viewed as false?

One could construct a counterargument against this position. It would go something like this:

> All those prior scientists were mistaken about the value of their theories. But we finally have things right. The entities referred to by our current best theories are real. The truth is now in our hands.

This counterargument, however, is implausible and boastful.

The pessimistic induction argument is relevant for our realist models of psychiatric illness because we have, in the history of psychiatry, many diagnostic categories that were once used and accepted, and have now been abandoned. With little difficulty, anyone knowledgeable about the history of psychiatry could come up with many such categories. From Esquirol[13], we could find lypemania, demonomania and monomania. From Wernicke, we could note somatopsychosis and anxiety psychosis[14]. Late in life, Kraepelin proposed a category of paraphrenia that was used by his students for a few decades and then abandoned[15]. In his lovely book on personality disorders[16], Schneider has several categories, such as the "fanatic psychopath", which are no longer used. In the 20th century, Leonhard – a follower of Wernicke – proposed a novel classification for the endogenous psychoses used by a number of his followers that included such ornate titles as "parakinetic catatonia", "phonemic paraphrenia" and "insipid hebephrenia"[17]. Hysteria was a major psychiatric category for many decades of the 19th and early 20th centuries, which has now been abandoned. I could go on.

Here is the bite. Given the dozens of psychiatric diagnostic systems that have come and gone over the history of our discipline, can we really argue that with DSM-5 or ICD-10 we have finally got it right and that the truth is now in our hands? Like the above counterargument against pessimistic induction, this sounds implausible. If history is any guide, isn't it highly likely that our current DSM and ICD categories will, in the future, eventually be seen as false (or more politely as "sub-optimal")? If so, what does this do to our current claims for the realism of psychiatric disorders? Indeed, such issues are quite current. During the development of DSM-5, one major proposal, not ultimately accepted, called for the deletion of five of the ten DSM-IV personality disorders and another, eventually accepted, eliminated the classical subtypes of schizophrenia.

Historical contingency

I can make two different arguments for the historically contingent nature of our current psychiatric categories. The first is a thought experiment. Imagine turning the clock back ten thousand years and allowing human civilization to again develop agriculture, writing, science, medicine, and, finally, something resembling psychiatry. Then we wait till this psychiatry-like discipline decides to write a diagnostic manual and we get a copy of this manual. We then repeat this experiment 100 times and classify the resulting categories alongside our current DSM-5 and ICD-10. What will we find? My intuition (and those of many with whom I have shared this thought experiment) is that a substantial proportion of our current categories will not be represented reliably in these manuals. Unlike the elements in the periodic table, our current menu of psychiatric disorders would not likely be consistently rediscovered.

The second argument is that our current diagnostic system is highly dependent on some particular historical events. What would have happened if Kraepelin stayed in Wundt's laboratory, as he wanted, and never went on to his psychiatric career? What if Wernicke, the one genuine competitor with Kraepelin for prominence in Germany psychiatry at the turn of the 20th century, had not died from a bicycle accident at the age of 52 in 1905? What if Spitzer really liked psychoanalysis and never got involved in psychiatric nosology? One can plausibly argue that, if any of these events had occurred, DSM-5 and/or ICD-10 would be meaningfully different from what they are now.

These two arguments are inter-related. If there are many steps between the overt manifestations of psychiatric illness on the one hand and the creation of an official psychiatric nosology on the other, and some of these steps involved historical contingencies, then we would expect that re-running the "tape of time" over and over would not always produce the same DSM or ICD categories.

FOUR POSSIBLE MODIFICATIONS OF THE REALISTIC POSITION FOR PSYCHIATRIC DISORDERS

In this section, I explore four ways in which the realism position for psychiatric disorders can be modified and made more credible.

Homeostatic property clusters

I want to expand our prior discussion about the preference for biological over chemical models of realism for psychiatry by considering the concept of a "homeostatic property cluster", as originally proposed by the philosopher R. Boyd[18-20]. Consider

what makes up a stable biological species, from the ecosystem to physiology, from mating processes to predator-prey relationships, from dietary adaptations to DNA sequence. As noted above, the properties of a species do not arise from a single essence like the properties of carbon can be derived from its number of protons. Rather, the nature of a lion or starling arises from a cluster of properties that inter-relate with one another in a stable manner over time. While we have sought for the key to humanness by comparing the genomes of humans with those of chimps and gorillas, it is clear that there are hundreds of meaningful genetic differences between us and our nearest primate relative, no one of which is definitional[21,22].

In our views about psychiatric disorders, we still often utilize essentialist thinking. Think about how we teach residents about the diagnostic criteria for major depression. What we typically say is: "There is this entity we call major depression. It can be diagnosed using these specific set of symptoms and signs which are manifestations of the underlying state of depression". Is this an optimal way to think about the underlying nature of psychiatric disorders? Where in the mind-brain system might these "essential factors" exist? Is there a mind-brain depression center with an "on-off" switch in it? Is it not more likely that our psychiatric syndromes arise from inter-connected networks that can profitably be understood at the level of mind (e.g., symptoms of guilt leading to ideas of suicide) or at the level of brain (e.g., disturbed reward systems produce anhedonia which then impacts on appetitive systems producing decreased appetite)? Psychiatric disorders can then be understood as emergent syndromes arising from disturbances in mind- and brain-based networks rather than concrete "things/essences" that exist in some definable place in the mind or brain.

Homeostatic property clusters can allow us to "soften" the unsustainable demand for true "essences" in realistic models for psychiatric disorders. They give us a tractable kind of "emergent" pattern. What makes each psychiatric disorder unique are sets of causal interactions amongst a web of symptoms, signs and underlying pathophysiology across mind and brain systems.

Homeostatic property clusters also have implications for how we should understand the inter-relationship between the symptoms and signs of psychiatric disorders. As advocated by Borsboom and colleagues in a series of influential papers[23-26], it may be more sensible to assume direct causal relationships between symptoms (insomnia causes difficulties in attention, guilt causes suicidal ideation) than to assume that each symptom is only the reflection of some essence of the disease – in this case depression. While beyond my charge, it is clear that this approach has produced novel insights into the nature of psychiatric disorders.

A more limited view of realism for psychiatric disorders

We can also take a more philosophical approach to trying to develop a better realism-based model for psychiatric disorders. My approach goes back to fundamentals – the nature of truth. Philosophy has two prominent theories of what it means for something to be true: a correspondence theory and a coherence theory. The correspondence theory is what most of us think about naively when we say something is true. The statement "It is raining outside now" is true if and only if it is indeed raining outside. So that statement "corresponds" to something in the world that we can easily verify, in this case by looking outside the window.

This seems to be a high standard. While it is easy to know if it is raining, how would we apply this approach to the statement "Schizophrenia as defined in DSM-5 is a valid disease"? What would *correspond* to this statement? Would it be enough to show changes in a magnetic resonance imaging scan, genetic risk factors, or a response to medication?

What if we wanted to be less demanding of ourselves in calling something true? A humbler approach can be found in the coherence theory of truth. This theory considers something to be "true" when it fits well with the other things we know confidently about the world. This is well expressed in the following metaphor:

> Consider a table with a puzzle on it all assembled but missing one piece. Think about the satisfaction you feel when you find that piece and fit it neatly into the missing space with a pleasing "snap".

That "snap" would reflect the coherence theory of truth. So what then do we mean, using this approach to say a diagnosis is true (or real)? We might say it is "pretty well" connected with the other pieces – that it is "pretty well" integrated into our accumulating scientific data base. In other words, a diagnosis is real to the degree that it "coheres" well with what we already know empirically and feel confident about.

Another way to apply this theory to psychiatry is to consider the question: "What do we mean when we want to say that one diagnostic concept (e.g., our modern concept of *schizophrenia*) is more real than another (e.g., the concept of *frenzy* in the early 19th century)?" Using a coherence theory of truth, the answer is simple. To be more real means to be connected to more already existing things we know.

The coherence theory of truth has one more important benefit to offer us. The other pieces in our puzzle metaphor for the coherence theory are what we have called validators since the days of Robins and Guze[27]. The best diagnoses we have are the ones that are strongly connected with other things we know about – that is, are "well validated".

For individuals assigned to that diagnostic class, we follow the connecting pieces and see all the other things that we learn about them – genetic risk factors, premorbid susceptibilities, imaging findings, neurochemistry, course, prognosis, treatment, etc.. As a disorder becomes more valid, it becomes more connected with our knowledge-base and, from a coherence perspective, more real.

The coherence theory, therefore, provides a framework for what it might mean to make our constructs refer to something

"more" real. We should require that, for each iteration of our diagnostic manual, changes be made in our diagnostic categories only when they result in the diagnosis becoming "more" real, which by the coherence theory means more interwoven into the fabric of our scientific findings.

I do not want to underestimate the potential importance of adopting a coherence theory for psychiatric illness, because it departs in some important ways from our conventional ideas about truth. Indeed, it moves our ideas about "truth" in a distinctly pragmatic direction. Right now we can do a much better job of applying this more modest and practical view of truth to psychiatric illness than we can with the more ambitious correspondence theory.

Types of psychiatric disorders versus tokens

Our discussion up until now has had one glaring deficiency. In discussing the question of "what sort of thing is a psychiatric disorder", we have treated psychiatric disorders as if they formed a homogeneous entity. This assumes that autism, schizophrenia, nicotine dependence, narcissistic personality disorder, nightmare disorder, and factitious disorder are the same kind of thing. Is this a plausible assumption?

Philosophy has a distinction that can help us here: between types and tokens. Tokens are specific manifestations of a broader general class, while types are the broad class, which can have several levels. So we would have a super-ordinate type of "automobiles", subtypes of Ford, GM, Volvo and BMW sedans, and then tokens would be the individual cars themselves – my beat up 16 year old Volvo station wagon.

To parse this in psychiatric terms, we could say that psychiatric disorders would be the superordinate type, subtypes would include "mood disorders" and "psychotic disorders", and the tokens would be the individual disorders: schizophrenia, panic disorder and pathological gambling.

I want to argue that we should be more committed to the reality of psychiatric types than of psychiatric tokens. Think of the historical contingency argument. The probability that our current diagnostic category of histrionic personality disorder would show up every time we re-ran the tape of time, over and over again, strikes me as low. If I were to defend the realism of psychiatric illness, I would not choose to make histrionic personality disorder my *cause celebre*. What about the stability over multiple "replications" of human history of the broad concept of personality disorder? That sounds like a better bet to me.

Consider the pessimistic induction argument. This is the argument that since things we have taken to be true in the past have been shown to be false, the same could happen to those things we accept as true and valid today. However, while specific diagnostic categories will come and go over time, is it more probable that certain broad constructs – like neurodevelopmental, internalizing or psychotic disorders – will stand the test of time?

The logical extreme of this would be to stake our claim for reality on the broadest possible type – all psychiatric illness. This argument has important strengths. This broad category is much less vulnerable to the pessimistic induction or historical contingency arguments. Specific psychiatric disorders may come and go, but the phenomena that we now describe as psychiatric disorders are likely part of the human condition, and will exist and be described in some way by any human culture during any historical time period. However, this argument is not a panacea and risks descent into the wooly "unitary theories of psychiatric illness". With respect to impact on human suffering, in arguments for the need for clinical care or the viability of our profession as a sub-discipline of medicine, this argument has force. Nonetheless, in the halls of research institutions and most care clinics, we want to continue to subdivide our patients, however imperfectly, into our diagnostic categories.

An historical perspective applied to psychiatric disorders

Up until now, we have been viewing the problem of psychiatric kinds from a largely static cross-sectional perspective. In this section, I want to briefly explore what we might learn by adopting an historical perspective. I will here borrow from the philosopher of science I. Lakatos[28]. As he suggested, research programs can be progressive or degenerative. I suggest that diagnostic concepts in medicine, in general, and psychiatry, particularly, can also be progressive or degenerative. I will define "progressive" for our purposes as roughly "continuing to yield new insights into etiology, course and treatment". For our discussion here, I want to suggest that, as disorders continue to provide us new insights, they become more "real". This relates directly to our discussion above about the coherence theory of truth.

Take, as an example of a highly generative diagnostic position, the splitting of the syndrome of diabetes mellitus into type 1 or insulin-dependent, and type 2 or insulin-resistant forms[29]. This diagnostic distinction has proven very fertile, as these two forms of diabetes mellitus now have well understood entirely different etiologies, different treatments and prognoses. Recent molecular genetic studies have shown non-overlapping sets of risk genes for the two types[30]. Clearly, this has been a "progressive" diagnostic program.

I do not think that in psychiatry we have any story of successful diagnostic "splitting" that can compete with the diabetes mellitus story. However, we have two that come close.

Kraepelin's concept of manic-depressive insanity included what we now call major depression and bipolar illness. For a range of reasons, some having to do with writings of Leonhard[17], bipolar illness was separated out from major depression in the middle of the 20th century. We now know that this too has been a "progressive" diagnostic splitting, leading to clear differences in treatment and etiology, including molecular genetic findings.

Our other success story might be separating the broad category of anxiety neurosis into panic disorder and generalized

anxiety disorder (GAD). This was a direct result of studies by D. Klein[31] using a method he called "pharmacologic dissection". What differentiated panic disorder patients from those with other forms of anxiety was a rapid response to relatively low dose imipramine. We now know that panic disorder and GAD differ meaningfully in etiology and, somewhat, in their pharmacologic and psychotherapeutic treatment.

So, this tentative line of thought would suggest another way to think about how our disorders become more "real". In an historical extension of the coherence theory of truth, those disorders become real if over time they "keep on giving", providing us with continued fresh insights into etiology and treatment.

CONCLUSIONS

In this final section, I want to describe the evolution in my own thinking about the kind of things that psychiatric disorders are. As I noted above, in my early years, as an avid young biological psychiatrist on the trail of verifying the dopamine hypothesis of schizophrenia, I would have been an unreflective, hard-nosed realist. It would never have occurred to me that schizophrenia was not a real thing, and as real as elements in the periodic table.

I do not believe that any more. I have read too much psychiatric history. I have sat through too many DSM meetings. While I remain committed for both scientific and personal reasons to the reality of psychiatric disorders, I have struggled to find a more acceptable way to frame those beliefs. Chemistry-based models of scientific realism do not work for psychiatry. Our disorders are not real in the same way that oxygen and carbon are – not in our historical era and, probably, not ever. They are by nature much messier, which is not surprising when you compare the complexity of the human mind-brain system and atoms.

The biology flavor of scientific realism provides a much more comfortable fit for psychiatry. So, that is a clear improvement. But then we have to confront this question about essences. The debate about whether realistic kinds in science had to have essences is a long one. I do not think this is likely a sustainable position for psychiatry. I have to admit an autobiographical influence here. It was only shortly after my brash days as a biological psychiatrist seeking to find "*the*" neurochemical cause for schizophrenia that I set out to find "*the*" gene for schizophrenia by studying large high-density pedigrees in Ireland[32]. Both efforts were driven by a naïve view of schizophrenia that it had a single essence – one biological secret which if understood would explain all we wanted or needed to know about the disorder. Linkage studies had worked for Huntington's disease and for cystic fibrosis. Why not for schizophrenia? Even though I knew better (the pattern of schizophrenia in families was nothing like that found for classic Mendelian genetic diseases), the passion was there to find the cause for schizophrenia. If not one neurotransmitter, why not one gene? Thirty years later, we have now identified well over 100 risk genes for schizophrenia[33] and the number is likely to grow rapidly. So much for essences!

Our disorders are probably inherently multifactorial. In this sense, they do not differ from the most important of our non-infectious common medical disorders, such as hypertension, type 2 diabetes, coronary artery disease, or osteoporosis. So if we give up on essences as being the bed-rock of psychiatric kinds, with what might we be left? The best framework that I have found for this is networks of interacting causes and symptoms like Boyd's homeostatic property clusters. The stability of our disorders over space and time is an emergent property of the human mind-brain system – not the result of one essence from which all the symptoms and signs develop.

The pragmatic position toward psychiatric disorders is a perfectly respectable one. It can be well defended and has a strong common-sense appeal. Ultimately, the practice of psychiatry is a pragmatic one. However, for a range of reasons, some well-grounded and others probably less so, this position is insufficiently ambitious for me. But, I am clearly willing to use pragmatic tools to reach realist goals.

We should not get backed into a corner claiming that social processes play no role in the construction of our categories. That is not a defensible position. There is no shame here. All scientific enterprises have social components. To suggest that we could keep psychiatry immune from social processes is unrealistic. However, we can vigorously defend the difference between social processes in our science and nosology, and socially created disorders. It is this latter category that we must assiduously guard against.

If I were to have a public debate with an arch anti-psychiatrist, I would not want to put myself in the position of defending the reality of every category in the DSM-5 or ICD-10. The pessimistic induction and historical contingency arguments are too powerful for me to be able to confidently defend our current system as "true", as many of our diagnostic categories are tentative working models that are likely to change. We have many more reasons to defend the reality of the broad classes of psychiatric illness than the specific categories in our current diagnostic manuals.

One of the key compromises I am willing to make with pragmatism is the adoption of the coherence theory of truth as our working model. It is a less ambitious (philosophers would call it "deflated") view of truth than the more standard correspondence theory. Nonetheless, it is a helpful move. If we do not and cannot expect essences for our disorders, how exactly can we define their "real-ness" in a correspondence theory? The coherence theory of truth seems to fit so well into our ongoing efforts as a young science. Our disorders become more real as they fit better and better into our emerging empirical knowledge of the causes and consequences of psychiatric illness. As I have long argued, in the end, it is in the grounding of our disorders in our empirical science (via validators) that we have the greatest probability of producing lasting, valid and "true" categories.

Instead of thinking about the truth of our disorders as a static concept, we might wish to consider them in an historical

framework. Viewed from this perspective, a true disorder is one that over time grows more and more valid, explains things about the world for us and increasingly fits in our world view. This approach, which has a clear pragmatic "flavor", can be seen as taking the coherence theory of truth and putting it into an historical framework.

In conclusion, I would advocate for a "soft" realist position for psychiatric disorder – one that is much closer to biology- than chemistry-based realism and has elements of the pragmatic position. Our disorders are unlikely to have essences in a classic sense, with their natures probably arising from "networks" of causes, symptoms and signs, as postulated within homeostatic property clusters. We need to soften the realist position through the use of coherence theories of truth. The best available antidote against the power of the pessimistic induction and historical contingency arguments is to place more trust in our psychiatric types than the specific tokens of psychiatric illness which now populate our diagnostic manuals. In our project to study and justify the nature of psychiatric disorders, we ought to be broadly pragmatic but not lose sight of our underlying commitment to the reality of psychiatric illness.

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