

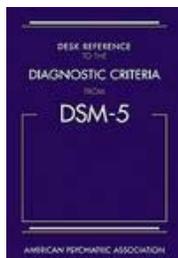
Let's Help Psychiatry Get Back on the Right Track . . . Again!

A Review of

Diagnostic and Statistical Manual of Mental Disorders: DSM–5 (5th ed.)

by American Psychiatric Association.

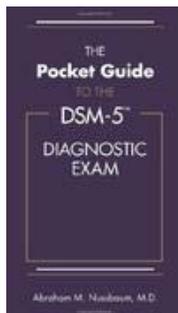
Washington, DC: American Psychiatric Association, 2013. 947 pp. ISBN 978-0-89042-554-1 (hardcover); ISBN 978-0-89042-555-8 (paperback). \$199.00, hardcover; \$149.00, paperback



Desk Reference to the Diagnostic Criteria From DSM–5

by American Psychiatric Association.

Washington, DC: American Psychiatric Association, 2013. 395 pp. ISBN 978-0-89042-556-5 (paperback). \$69.00, paperback



The Pocket Guide to the DSM–5 Diagnostic Exam

by Abraham M. Nussbaum

Washington, DC: American Psychiatric Association, 2013. 273 pp. ISBN 978-1-58562-466-9 (paperback). \$65.00, paperback

<http://dx.doi.org/10.1037/a0034713>

Reviewed by

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The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM–5)*, psychiatry's guidebook for mental health professionals, insurance companies, and pharmaceutical houses, makes a retrogressive return to earlier times in its core assumptions, a change that most commentators on the manual consider to render it far less productive and clinically useful than its prior versions, the *DSM–III* (American Psychiatric Association, 1980) and *DSM–IV* (American Psychiatric Association, 1994). What makes the *DSM–5* so retrogressive?

In the 19th century, the work of Wilhelm Griesinger dominated German psychiatric thinking for many decades (Millon, 2004). Griesinger laid the groundwork for viewing mental disorders as brain diseases; because these diseases were not observable in his day (just as they are not in ours), he recommended that they be studied as *overt symptom complexes*. His prime nemesis was his fellow German psychiatrist Karl L. Kahlbaum, who asserted that psychiatric diagnoses should be based on a patient's *illness course* and *outcome*, not on his or her current symptoms. Kahlbaum was explicit in arguing that overt symptomatology is essentially useless and that a focus on superficial symptom complexes would never expose anything essential about the underlying disorder.

Emil Kraepelin, the great classifier of 20th-century psychiatry, noted his indebtedness to Kahlbaum's approach by stating that identical or remarkably similar symptoms can accompany wholly dissimilar diseases and that their inner nature can be revealed only through their progress and termination. The *DSM–5* has retrogressed to the Griesinger view, failing to recognize that the great thinkers of the late 19th and 20th centuries ultimately discarded the symptom complex as the basis for understanding or classifying psychiatric impairments.

The *DSM–III*, published in 1980 under the imaginative and vigorous leadership of Robert Spitzer, took a series of radical steps to break the hold of the early 19th-century fixation on symptom complexes, broadening the scope of classification by establishing the *multiaxial system* of thinking and analysis. The *DSM–5* has now dropped this novel multiaxial schema that saw overt symptoms to be the upshot of the *interaction* of the patient's personality and its vulnerabilities (Axis I) with the medical and psychosocial stressors (Axes III and IV) in his or her life. The *DSM–III* also incorporated many of the fecund ideas of Adolf Meyer, the principal teacher of psychiatry in the mid-20th century. These ideas undergirded the best exploratory features of *DSM–I* (American Psychiatric Association, 1952) and *DSM–II* (American Psychiatric Association, 1968).

DSM-5 has not only reverted back to a 19th-century German classification schema, but it also has abandoned Hippocrates's advice to his medical colleagues, as well as the parallel principles enunciated in the early 20th century by Sir William Osler, founding dean of both the Johns Hopkins School of Medicine in the United States and Oxford University Medical School in England. Osler noted that "the good physician treats the disease; the great physician treats the patient who has the disease."

Before I spell out the wide-ranging critiques detailed by commentators on the proposals of the *DSM-5* Task Force, let me record the progressive aspirations of its authors, as well as some achievements that I believe are noteworthy.

Goals and Achievements of *DSM-5*

As stated by its publisher, the American Psychiatric Association, this fifth edition, 947-page *DSM* was intended to be an authoritative volume that defines and classifies mental disorders in a manner that would facilitate an objective assessment of symptom presentations in a variety of clinical settings. Further, it was designed to integrate the latest findings from neuroimaging, genetic, and cultural research, using consolidated criteria consistent with developments relating to the upcoming edition of the *International Classification of Diseases (ICD-11)*, and it was intended to serve as a resource for mental health clinicians and researchers from a wide variety of orientations and professions in the United States. The 395-page *Desk Reference to the Diagnostic Criteria From DSM-5* includes all of the revised *DSM-5* diagnostic criteria (excluding elaborating texts) in a simple paperback form. The 273-page *Pocket Guide to the DSM-5 Diagnostic Exam* details steps involved in making the reader conversant with a *DSM-5* diagnostic interview, giving special attention to differences between *DSM-IV-TR* (American Psychiatric Association, 2000) and *DSM-5*.

Several conferences were held prior to the *DSM-5* Task Force meetings to help orient its members to key clinical and research goals. Each of these conferences addressed the wisdom of developing dimensional criteria that might replace or supplement the traditional categorical schema for assessing mental disorders, especially among the personality disorders. Also central to the goal of the conferences were proposals to develop intensity continua that would describe midseverity ranges between normal and abnormal personalities, a goal illustrated by the decision to change the Axis II Work Group's name to the Personality Disorders Work Group.

The chairpersons of several of the *DSM-5* work groups had serious reservations about the validity of the traditional categorical approach to the diagnosis of mental disorders. Many studies illustrated that there were high rates of comorbidity between the disorders owing to the commonality that they displayed among their diagnostic characteristics. Moreover, there were no laboratory markers found to be specific for any *DSM*-defined syndrome. In fact, two individuals could meet the criteria for a given disorder yet have no overlapping traits whatsoever. Treatment specificity for different disorders was also a rare phenomenon. Thus, one of the major goals of the teams that created the *DSM-5* was to reduce, wherever feasible, extensive co-occurrence among disorders, especially those of the personality disorders. Essentially the goal was to reduce the extreme heterogeneity found among patients receiving the same diagnosis.

The decision to use a severity dimension in all diagnoses is common in modern medicine (e.g., the stages of hypertension, the three classes of obesity, and the variety of stages of cancer). Previously, *DSM* diagnoses used only a dichotomous classification that simply differentiated between those who had the disorder and those who did not.

Empirical research reported in the *DSM-5* indicates that a severity assessment is essential to any dimensional system for psychopathology in general and for the personality disorders in particular. Dimensions pertaining to self- and interpersonal functioning, well formulated in theories of cognitive/behavioral, interpersonal, psychodynamic, and evolutionary schools of thought, were viewed by the task force as key aspects of psychopathology.

Clearly, the *DSM-5* authors took great pains to draw attention to the empirical grounding of the concepts they proposed and the changes they introduced. Compared with that of the prior *DSMs*, the *DSM-5* narrative is much richer because it discusses issues such as development processes, illness course, risk factors, suicide risk, gender differences, and, most notably, the quality and extent of cultural considerations, thereby enhancing the utility of the *DSM* for those professionals treating increasingly diverse mentally ill populations.

Dilemmas, Unresolvables, and Failures of the *DSM-5*

The overarching dilemma facing the *DSM-5* authors was that their subject was not based on true science; at best, they believed, each of the *DSMs* rested on a pseudo- or a semiscience. *I disagree.*

Psychiatry is a young science, one grappling with philosophical imponderables and obscure data sources that are difficult to understand. We were on the right track until the *DSM-5* authors reversed the switches and put us once again on the wrong track. The patient problems that they sought to describe are grounded in reality; however, it is not a reality so readily observed and analyzed as that of standard biological diseases or the structures of molecules. What the *DSM-5* has put before us are labels for groups of symptoms similar to those conceived by the early German nosologists.

When we review current psychopharmacology, we realize that little has improved in the last 25–30 years (Friedman, 2013), and psychiatric treatment is still an art rather than a science. The *DSM-5*, psychiatry's "bible," implicitly suggests that its nomenclature is based on scientific facts. However, the *DSM-5* is an illusory guide, and hardly a useful tool for scientific treatment planning. Multiple perspectives are reflected, yet few real concepts or techniques have been added over the past several decades. An evolving consensus regarding the *DSM-5* is that these categories should not be adopted; rather, they should be seriously questioned and replaced as expeditiously as possible. To many commentators, the manual itself has an unwieldy Frankenstein-like quality because the authors retained an archaic belief in the value of superficial symptoms patched together with conjured-up significance and labels.

Some critics would go so far as to unravel and undo the entire enterprise; others simply believe that the *DSM-5* effort should not be taken seriously until the undergirding elements that lead to the disorders that the manual portrays are more clearly and substantively understood. Supporters of the *DSM-5* quibble disingenuously, looking for loopholes in the critics' arguments, tarring those who condemn it as distorters. The truth, in my judgment, is that the *DSM-5* authors have been struggling in a morass of methodological and conceptual issues that require much more honesty and philosophical know-how than the authors demonstrated.

What, then, are the specific criticisms, and who are those who took it upon themselves to record in considerable detail what they saw as the major failures of the *DSM-5*?

As early as 2010 a large group of experts whose professional lives were dedicated to research and treatment in psychopathology raised serious questions concerning the proposals of various *DSM-5* work groups, most notably the one dealing with the personality disorders. Numerous changes were seen as being too radical and likely to harm professional practice. Further, the magnitude of changes was unjustified; the rationale for what was presented was judged either incomplete or inadequate. In a letter to the members of the *DSM-5* Personality and Personality Disorders Work Group, these experts asserted that changes in classification should be incremental and should build on prior systems. As these authorities perceived them, the proposed changes failed to demonstrate any awareness of the clinical value, the history, or the research upon which the existing personality disorders included in *DSM-III* (American Psychiatric Association, 1980) and *DSM-IV* (American Psychiatric Association, 1994) were based; moreover, a whole group of disorders was eliminated without appreciation for the impact of this decision on daily practice. In the judgment of these experts, the system being proposed was impossibly cumbersome, and it needed to be simplified, not complicated. In addition, as they saw it, the scientific bases for the proposed changes were undeveloped. Thus, rather than being stated as facts, the proposed changes should have been presented as topics requiring careful subsequent research. This group called upon all work groups to seek feedback from diverse representatives of the larger research and clinical community and to integrate their feedback into revised proposals.

One year later, failing to receive any satisfactory response from the work group, the same group of research experts, now somewhat enlarged in numbers, wrote to the *DSM-5* Task Force chairmen, David Kupfer and Darrel Regier, summarizing their prior concerns, stating that the minimally amended proposal was still too complicated and unfamiliar to those clinicians who were expected to use it, that it would aggravate, not ameliorate, problems of clinical utility, and that it lacked a scientific rationale. Commenting primarily about the evolving section on personality disorders, these experts noted that, in the face of the remarkable body of criticism about prior proposals, the then-current version was still being put forth without prior consultation with the clinical and research community. They also noted, as turned out to be the case, that there were insufficient plans and insufficient time for the proposed radical changes to be field-tested or compared with the merits of prior *DSM* systems.

This 2011 memo to the *DSM-5* Task Force was signed by a distinguished group of professionals that included Aaron Beck, John Clarkin, Michael First, Glen Gabbard, John Gunderson, Otto Kernberg, Marsha Linehan, Joel Paris, Paul Pilkonis, Elsa Ronningstam, Kenneth Silk, Erik Simonsen, and Drew Westen.

The key leaders who had been deeply involved in the task of writing the prior manual, the *DSM-IV* (American Psychiatric Association, 1994), were especially critical. Understandably, it was natural for them to be particularly sensitive to the radical changes from their manual that had been initially proposed for *DSM-5*. Three major professionals are notable in this regard: Allen Frances, who chaired the *DSM-IV* Task Force; John Gunderson, who chaired the Personality Disorders Work Group for

that edition; and Thomas Widiger, who served as the overall research coordinator.

Frances's concerns are particularly cogent and relevant to my own critique of *DSM-5* (Frances, 2012a, 2012b, 2013a, 2013b), although his views are more severe and judgmental than mine. Frances was particularly concerned that the "normal" ups and downs, stresses, sorrows, and setbacks of life were being classified in the *DSM-5* as psychiatric diseases. As he saw it, today's "worried well" were going to be diagnosed as having a mental disorder and thereby would receive unnecessary medical treatment. For Frances, the mislabeling of everyday life difficulties as mental illnesses had shocking implications for both individuals and society. The misallocation of a nation's medical resources and the draining of family budgets were considered by him to be natural consequences of the *DSM-5*'s tendency to overpathologize the normal ups and downs of life. In the *DSM-5*, normal grief becomes a "major depressive disorder," the forgetting typical of old age is labeled a "cognitive disorder," and the everyday temper tantrums of children are classified as a "disruptive mood dysregulation disorder." All of these ordinary, but newly invented, conditions were seen by Frances to be a cruel consequence of a misdirected mental health industry. As he judged the matter, those who desperately need psychiatric help would be left shamefully neglected, while the "worried well" would be given the bulk of treatment, often to their own detriment.

As many critics have noted, the *DSM-5* got off to a bad start and was never able to establish a clear sense of purpose and direction. Its leaders articulated a premature and unrealizable goal. They sought to develop a paradigm shift in psychiatry, but, because of excessive ambition and a disorganized execution, they failed.

As noted, many people vigorously opposed the initial *DSM-5* proposals. More than 50 mental health organizations petitioned for an outside review of progress to prevent secretive judgments and to evaluate supporting evidence for the recommendations that were being made. As Frances saw it, the *DSM-5* was neither able to self-correct nor were its leaders willing to listen to advice from outside professionals. The *DSM-5* Task Force created a closed system; *DSM-5* leaders stubbornly refused to sponsor any independent review and gave no professional approval for "[its] reckless and untested ideas" (Frances, 2012b, para. 4). Frances detailed and summarized these failures in numerous articles in the *New York Times* (2012a), *Psychology Today* (2012b, 2013a, 2013b), and the *Psychiatric Times*. He did state, however, that members of the *DSM-5* Task Force approached its responsibilities with pure hearts and good motives; they did not, as some claimed, recommend changes because they wanted to secretly help the drug companies. Their failure was intellectual, not the result of a financial conflict of interest.

An egregious illustration of the failures of the *DSM-5* Task Force occurred when its deadlines were missed; as a result, its research groups cancelled the field-testing that was meant to provide badly needed quality control, and the *DSM-5* text and ancillary publications were rushed prematurely to press with incomplete field-testing data. As Frances perceived it, this was no way to prepare or approve a diagnostic system. Psychiatric nosology and diagnoses have become too important to be so poorly handled, given the *DSM-5*'s key roles in influencing treatment, determining eligibility for benefits, allocating resources, and guiding legal judgments. Moreover, this new nosology would determine the direction of ongoing and future research, as well as the development and approval of new drugs. Frances concluded that patients deserve better than the *DSM-5*; society also deserves better, and the mental health professions deserve better.

Another critic, John Gunderson (in press), had led the *DSM-IV* Axis II Work Group. Again, as with the views of Frances, those of Gunderson are somewhat more negative than mine. Gunderson, a longtime professor at Harvard's McLean Psychiatric Hospital, listed a series of what he called the failures of the *DSM-5*. To him, the focus that shifted the personality disorders into Self and Interpersonal sectors was a troublesome and radical step that lacked a strong empirical basis. These sectors were too complicated to assess, and, as Gunderson saw them, they were too unfamiliar to clinicians and would further diminish the instrument's utility. Most central to Gunderson's appraisals was the deletion of some personality disorders, shrinking the total from the original 11 or 12 to five or six (ultimately 10 were chosen for inclusion). This reduction lacked adequate clinical or empirical justification.

The reasons set forth for these deletions were their so-called underutilization, their excess overlap, and their lack of an adequate research base. Skeptical about these rationales, Gunderson saw underutilization to be an inherently weak argument in that rarity does not mean nonexistence. Excessive overlap he judged as occurring not because of any intrinsic covariation but because written diagnoses in hospital and clinical settings simply do not need or require detailed differentiations and specification. Further, he noted that diagnostic overlap and nondifferentiation are quite characteristic of many other medical disorders. The fact that there is insufficient research on most of the personality disorders is in great part a consequence of the primary study used to form the *DSM-5* Personality Disorders section. That research, the Collaborative Longitudinal Personality Disorders Study (CLPS; Gunderson et al., 2000), was limited to five personality disorders and was carried out for reasons that were unrelated to the *DSM-5*, but those types did become the basic disorders adopted by the *DSM-5* group. The personality disorders studied in the CLPS investigation were chosen to represent different sectors of personality pathology, not because

they had any greater inherent validity than other personality types.

Another major concern noted by Gunderson was that the *DSM-5* introduced a series of traits that lacked clinical familiarity and had a rather uncertain fit or relationship with the parent personality disorder constructs. Moreover, Gunderson asserted that using trait concepts derived from studies of nonclinical samples, and not even including the opinions of clinical experts when defining these traits, created difficulties regarding how to think about and conceptualize these new trait notions.

Gunderson noted further that the field trials were incomplete and that they were not constructed to enable adequate comparisons with the system that they were intended to replace. In addition, the concern of *DSM-5* researchers appeared to be primarily with issues of reliability rather than with validity and utility. Gunderson stated that the mandate for radical changes and efforts to dimensionalize the manual did not come from researchers and clinicians or from the personality disorder field itself. Particularly problematic was that the Personality and Personality Disorders Work Group meetings lacked strong clinical leadership, and that the members chosen for the group were adversarial, ideologically inflexible, and lacked clinical experience. By all accounts, the meetings were marked by unpleasant and hostile conflicts, bargains were made between work group members, and, like a dysfunctional family, members became self-absorbed and noncollaborative. Proposals that represented compromises on the part of everyone were satisfactory to none, and proposed changes and their justifications were lopsided and based on the committee members' own research interests and contributions.

The failure to involve clinical and research leaders within the larger personality disorder community led to considerable dismay and annoyance on their part. In their efforts to influence several of the work groups, these leaders failed to receive any formal responses to their critiques or suggestions—this lack of response was especially characteristic of the Personality and Personality Disorders Work Group. These failures to respond aggravated feelings of alienation and the perception of being ignored. The nonresponse also encouraged suspicion about the committee's biases, dismissiveness, and self-absorption. In concluding his critiques, Gunderson stated that even had the field trials been completed for the personality disorders, and even had the few reliabilities obtained been excellent, and even had they shown improvement over the existing system, there would remain a large gap in the knowledge needed to justify the radical changes introduced.

The third of the major developers leading the *DSM-IV* (American Psychiatric Association, 1994) effort was Thomas Widiger. As with his *DSM-IV* colleagues, he consistently highlighted the difficulties and imponderables with which that Work Group was faced. Widiger (Mullins-Sweatt & Widiger, 2009) was well known for his intermittent but incisive attacks on researchers developing the *DSM-5*. His critiques started out circumspectly, but they gained confidence as the *DSM-5* proposals began to emerge in the first decade of the 21st century. Owing to his early and central involvement in pre-*DSM-5* Task Force conferences, Widiger acquired an incomparable authority regarding its plans, and he demonstrated deep insight into its potential dilemmas. Widiger's research and critiques reflected points of view similar to those of Frances, his erstwhile colleague on *DSM-IV*. As a result, I will note just a few of his somewhat distinctive concerns about the *DSM-5*.

First, the *DSM-5* Personality and Personality Disorders Work Group specified a number of traits that undergirded the five personality prototypes that it identified for its incomplete field trials. As Widiger judged these efforts, the assignment of traits for the types, as well as for the deletion of many *DSM-IV* (American Psychiatric Association, 1994) personality disorders, possessed no empirical justification. Widiger was also concerned because the manual had been guided primarily by matters of construct validity rather than by clinical utility; however, the primary purpose of the *DSM-IV* was to facilitate clinical practice and communication.

It may appear that the only people who raised serious questions regarding the advisability of publishing the *DSM-5* were *DSM-IV* (American Psychiatric Association, 1994) devotees, but this was most certainly not the case. For example, the Society for Humanistic Psychology (Division 32 of the American Psychological Association) posed a series of justified concerns regarding whether the *DSM-5* should be published as then conceived. The Society (2011) drafted an open letter to the *DSM-5* Task Force that was signed by more than 15,000 people and endorsed by more than 50 mental health organizations. In correspondence with the American Psychiatric Association, the open letter called for reform of the *DSM-5*, arguing strongly for an external scientific review of the new manual.

The Society for Humanistic Psychology (n.d.) also drafted a "Statement of Concern About the Scientific Reliability, Validity, and Safety of *DSM-5*." This statement identified numerous concerns: Many diagnostic categories were included with questionable reliability, which could lead to misleading assumptions about their scientific validity; the *DSM-5* did not receive a much-needed and widely requested external scientific review; and use of the manual could result in unnecessary and potentially harmful treatment with psychiatric medications. The final recommendation was that the noted concerns should be resolved through concerted interprofessional and international dialogue, as well as through continued scientific research.

Erik Simonsen, a psychiatrist on the faculty of the University of Copenhagen, was also concerned (Simonsen, 2011). He suggested the following after reviewing early drafts of the *DSM-5*: Make the definition of personality simple and precise—is there a personality disorder or not? He noted that clinicians appreciate clarity and precision, and they need clear diagnoses in order to make treatment decisions. Simonsen suggested that severity ratings would be important in the future, especially in those parts of the world where severity determines the right to get free treatment and influences decisions about different levels of intervention. Further, it was hard for him to understand why some of the old categories were dropped because of lack of empirical research. Instead, he asked, why should we not arrange to have the research done?

Simonsen (2011) also questioned why the new *ICD-11* would include the dependent and the schizoid domains whereas *DSM-5* would not. He also wondered how epidemiological evaluations from one country to another could produce such dramatically different results. He went on to state that the trait system proposed in *DSM-5* should be regarded as only one part of additional assessments, not as a core part of the classification schema itself; at most, it should be placed in an appendix. Simonsen commented on the hope that the *ICD-11* would, somehow or another, save the *DSM-5* from its worst excesses. Unfortunately, he noted that the committees responsible for both manuals were taking on a complicated and risky task. Both groups were moving in radical new directions without much of an empirical foundation for their suggestions, and both lacked a commonly accepted personality theory or classification strategy; hence both *DSM-5* and *ICD-11* were likely to lead to complications rather than resolutions.

Kenneth Kendler, chair of the major American Psychiatric Association committee designated to review the proposed final *DSM-5* manuscript, concluded that the section on personality and personality disorders would create considerable problems for the profession and should therefore be deleted from the main body of the manual. It is hard to imagine a clearer statement regarding the inadequacy of the *DSM-5* manual.

As a result, the main section of the personality component in the *DSM-5* includes, in its entirety, what was already published in the *DSM-IV*. The personality and personality disorders component originally developed for the *DSM-5* is now published in Section 3, essentially an appendix of *DSM-5*. The inclusion of both models in *DSM-5*, with the newest ideas presented in the appendix, reflects the decision of the American Psychiatric Association Board of Trustees to preserve continuity with current clinical practice while also introducing a potentially new approach whose aims were ostensibly to address *DSM-IV*'s shortcomings. The Board of Trustees concluded, with great wisdom, to nullify the proposed *DSM-5* schema for personality disorders yet at the same time to present them out of respect for the efforts that had been expended. What more can one possibly say with regard to the *DSM-5* proposals on the personality disorders?

Where Do We Go From Here?

Frances, whose criticisms I have already noted, has stated quite bluntly and directly that we need something like the Food and Drug Administration to rein in diagnostic exuberance. However, there is no existing organization ready to replace the American Psychiatric Association. The most obvious candidate, the National Institute of Mental Health (NIMH), is, in Frances's judgment, too research oriented and too insensitive to the vicissitudes of clinical practice. However, in April 2013, Thomas Insel, director of NIMH, announced that his organization would reorient research away from *DSM* categories and substitute in their stead the NIMH Research Domain Criteria (RDoC).

In evaluating the *DSM-5* manual, Insel (2013) stated that, as with all previous editions, it provides a common language for describing psychopathology; the *DSMs* are, at best, dictionaries creating a set of labels defining each category. The strength of prior editions of the *DSM* had been their "reliability," with each edition ensuring that clinicians used the same terms in the same way. The critical weakness of the manuals, especially the *DSM-5*, was their lack of validity. Unlike definitions of heart disease, lymphoma, or AIDS, the *DSM-5* diagnoses are based on a general consensus about clusters of clinical symptoms, not objective laboratory measures. In the rest of medicine, this would be equivalent to creating diagnostic systems based on the nature of the experience of chest pain or the quality of a fever. Insel noted that symptom-based diagnoses, once common in other parts of medicine, have been largely replaced in the past half century as we began to understand that symptoms alone rarely indicate good understanding of an illness or directions for treatment, and patients with mental disorders deserve better.

NIMH's new RDoC should transform diagnoses by incorporating genetics, imaging, cognitive science, and other levels of information to lay the foundation for a new classification system. It became immediately clear as NIMH researchers proceeded in their efforts that they could not design a system on the basis of biomarkers or cognitive performance because they currently possess only the most rudimentary data. The proposed diagnostic system had to be based on emerging research data (Kandel, 2013), not on the current symptom-based categories. Aware of the preliminary nature of this research framework, Insel said that he plans to carry out a decade-long project.

Current antidepressants, antipsychotics, and anxiolytic drugs target the same brain systems as did prototypes from the 1950s. As noted by a knowledgeable writer for the *New York Times* on psychiatric matters (Friedman, 2013), it is hard to think of a single, truly novel psychotropic drug that has emerged in the last 30 years. We simply do not understand the fundamental cause of most psychiatric disorders because, in part, the brain is a uniquely difficult organ system to study.

Will the Insel/NIMH approach be successful, advancing our understanding of psychopathology and our approaches to the treatment of mental illness? Carl Hempel (1965), the eminent philosopher of science, wrote some decades ago that it is a remarkable fact that the greatest advances in science were not accomplished by inductive inferences based on research data; instead, they emerged largely as a means of deductive logic that generated hypothetical or theoretical entities—that is, intangible attributes that cannot be directly observed.

Hempel made a rough distinction between two approaches to scientific classification: a level of empirically based generalizations and a level of theory-deductive formations. He concluded that the early stages in the development of scientific classification usually belong to the former, which successfully establishes connections between directly observable aspects of the subject under study. The more advanced stages of scientific classification belong to the second level, where theorists aim at comprehensive laws of hypothetical entities that account for the uniformities established in the first level.

Other philosophers have wondered whether the scientific development of a classification system could ever be based on a subject that is inherently inexact and having only modest levels of intrinsic order, a subject in which even the slightest variations in content or antecedent conditions, often of a minor or random character, may produce highly divergent outcomes. As they see it, there are few reasons to believe that classification endeavors could ever be shown to be anything other than purely illusory. To illustrate: Among the striking data found in recent biological investigations is the awesome intricacy of results derived from standard research procedures. These procedures were expected to produce consistent evidence that would lead to explanatory coherence in their results. But research in genomic science has been forced recently to take several steps back to an earlier stage of development, owing to the confounding effects of intricate and unanticipated gene–protein feedback loops that undermine any straightforward cause-and-effect thinking (Millon, 2011).

As Hempel (1965) has noted, in the early stages of knowledge, categories of a classification rely invariably on observed similarities among phenomena. As knowledge advances, however, overt similarities are discovered to be an insufficient, if not false, basis for establishing categories and imbuing them with scientific meaning. To the major philosophers of science today, it is clear that theory provides the glue that holds a classification system together and gives it both its scientific status and its clinical relevance. To carry forth their notions concerning the value of a theoretical classification system, Hempel and many other philosophers of science state that a theoretically anchored taxonomy may enable diagnosticians to generate insights into clinical relationships that they may not have grasped before. Furthermore, theory should enlarge the sensitivity and scope of knowledge of observers by alerting them to previously unseen relations among attributes, and then guide these new observations into a coherent body of classification knowledge.

The situation in which we find ourselves today is somewhat akin to the problem that arose in theoretical physics in the 1920s, when physicists found that the properties of atomic photons were *particles* that sometimes possessed the properties of *waves*. Were these atomic elements waves, were they particles, or were they both? Niels Bohr, the great quantum mechanics physicist, proposed in an address in 1927 a new principle that he called *complementarity*. In that notion he stated that light (photons) could be a particle or a wave, depending on what experiment or theoretical principle the researcher chose to employ. Bohr's complementarity principle served as the foundation of what came to be called the *Copenhagen interpretation* of quantum mechanics: The role of the observer or experimenter is a crucial determinant in creating reality (a point of contention for many physicists). Bohr stated, however, that the properties of the quantum system have no precise meaning before being measured. For Bohr, the two properties of position and momentum are necessary for a complete account of the system and its behavior, but one could speak of them only one at a time, not simultaneously.

The primary payoff of Bohr's philosophical conceptions of quantum physics was the discovery that there are multiple "truths" that often come in complementary pairs. Is that not where we are at the moment in our efforts to understand psychopathology? Are not the theoretical models proposed these days, for example, psychodynamic (Kernberg, 1967) or evolutionary (Millon, 2004) conceptions of psychological disorders, simply the complementary side of the empirically inductive research that investigators such as Livesley (2011) and Widiger are currently also proposing? Is the field at a point where inductive inferences based on concrete evidence and on deductions from a theoretical model are really two sides of "truth," not oppositional or sequential approaches to our subject matter? Only time will tell.

Before we decide to surrender to hopelessness regarding the task, let us embrace a harmonious posture of open-mindedness and see if we can find a consensus-building route, one that permits a place for all *DSM-III*, *-IV*, and *-5* personality disorders,

a common ground, if possible, or one differentiated in terms of its primary orientation, be it empirical, theoretical, historical, or clinical. We owe it to ourselves and to our profession to keep our minds open to fresh alternatives that reflect our best philosophical and evidentiary criteria.

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