The Conceptual Development of DSM-V

Over the past 30 years, there has been a continuous testing of multiple hypotheses that are inherent in the *Diagnostic and Statistical Manual of Mental Disorders,* from the third edition (DSM-III) (1) to the fourth (DSM-IV) (2). Although DSM-III was the first official classification of APA to embrace these hypotheses, their intellectual origin is more properly attributed to Eli Robins and Samuel Guze's landmark 1970 article on the establishment of diagnostic validity in psychiatric illness (3) and the subsequent 1972 release of the St. Louis "Feighner diagnostic criteria" (4). These formed the basis for the 1978 Research Diagnostic Criteria (RDC) (5), which were used in the longitudinal collaborative study on the psychobiology of depression supported by the National Institute of Mental Health (NIMH) (6) and ultimately were the prototypical diagnoses adopted in DSM-III in 1980.

The expectation of Robins and Guze (3) was that each clinical syndrome described in the Feighner criteria (4), RDC (5), and DSM-III (1) would ultimately be validated by its separation from other disorders, common clinical course, genetic aggregation in families, and further differentiation by future laboratory tests—which would now include anatomical and functional imaging, molecular genetics, pathophysiological variations, and neuropsychological testing. To the original validators Kendler (7) added differential response to treatment, which could include both pharmacological and psychotherapeutic interventions.

After almost 40 years of testing these hypotheses, we are impressed by the remarkable advances in research and clinical practice that were facilitated by having explicit diagnostic criteria that produced greater reliability in diagnosis across clinicians and research investigators in many countries. The benefit of using explicit criteria to increase reliability in the absence of etiological understanding was an outcome predicted by the British psychiatrist Ervin Stengel (8). However, as these criteria have been tested in multiple epidemiological, clinical, and genetic studies through slightly revised DSM-III-R (9) and DSM-IV editions, the lack of clear separation of these syndromes became apparent from the high levels of comorbidity that were reported (10, 11). A particularly clear discussion of the inability to identify "zones of rarity" between mental disorders was presented by Kendell and Jablensky (12). In addition, treatment response became less specific as selective serotonin reuptake inhibitors were found to be effective for a wide range of anxiety, mood, and eating disorders and atypical antipsychotics received indications for schizophrenia, bipolar disorder, and treatment-resistant major depression.

More recently, it was found that a majority of patients with entry diagnoses of major depression in the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study had significant anxiety symptoms, and this subgroup had a more severe clinical course and was less responsive to available treatments (13). The lack of clear separation between current disorders defined by DSM-IV was clearly illustrated in a survey of primary care patients (14), which found that among individuals with the most severe ratings of depression, anxiety, or somatization, more than one-half in each syndrome group also had at least one, if not both, of the other two disorders. Further, the combined influence of the three syndromes on functional impairment was far more significant than any of their individual effects. Likewise, we have come to understand that we

> *"We now have a plethora of comorbidity—because patients do not usually have only mood, somatic, or anxiety symptoms but tend to come with a mix from multiple symptom groups."*

are unlikely to find single gene underpinnings for most mental disorders, which are more likely to have polygenetic vulnerabilities interacting with epigenetic factors (that switch genes on and off) and environmental exposures to produce disorders.

In retrospect, it is interesting that there was such a strict separation of mood, anxiety, psychotic, somatic, substance use, and personality disorder symptoms for the original Feighner diagnoses (15). It is clear that a hierarchy was present that tended to suppress the significance of lower-order symptoms in the syndrome definitions in order to achieve such pure types. This hierarchical arrangement of disorders was implicit in the Kraepelinean classification tradition of ranking organic mental disorders, nuclear schizophrenia, manic-depressive illness, and neurotic illnesses from higher- to lower-order conditions (16). It was followed by an explicit statement of Jaspers: "The principle of medical diagnosis is that all the disease-phenomena should be characterized within a single diagnosis…in any one person" (17, p. 611). Although the idea of a strict hierarchy, in which the presence of any disorder could cause manifestations of disorders lower in the hierarchy, was explicitly abandoned for DSM-III-R, after publication and review (18) of the article by Boyd et al. (10), the continued strict separation of symptoms and disorder types has persisted through DSM-IV. Some remnants of the hierarchy persist in a few areas, such as the diagnosis of autistic disorder (299.00), in which there is still an explicit exclusion of a diagnosis of attention deficit hyperactivity disorder (ADHD) if autistic disorder is present. The practical effect of this exclusion is that insurance reimbursement is often denied for co-occurring symptoms of ADHD in the presence of a diagnosis of autism. To support this strict separation, we now have a plethora of comorbidity—because patients do not usually have only mood, somatic, or anxiety symptoms but tend to come with a mix from multiple symptom groups. Hence, we have heterogeneous conditions within single diagnostic groups, a remarkably high rate in specialty mental health settings of "not otherwise specified" (NOS) diagnoses that do not quite fit the existing criteria, as well as high rates of "subsyndromal" mixed anxiety-mood-somatic disorders in primary care settings.

How then are we to update our classification to recognize the most prominent syndromes that are actually present in nature, rather than in the heuristic and anachronistic pure types of previous scientific eras? A serious consideration from the aforementioned study by Lowe et al. (14) is that some patients with clinically significant distress and impairment might have only a few symptoms from mood, anxiety, and somatic diagnostic criteria sets that do not qualify for a formal diagnosis in any one disorder although the aggregate burden requires an NOS diagnosis and treatment. A more important clinical consideration is that the clinical course and treatment response for anxious depression, posttraumatic stress disorder with depression, and other mixed disorders cannot be predicted from clinical trials of medications or psychosocial interventions that are based on outcomes with patient groups selected for pure categorical disorders or that contain an unknown heterogeneous mix of comorbid conditions. In addition, supraordinate dimensional measures may provide better phenotypic expressions for linkage to illness susceptibility substrates identified by neuroimaging and genetic studies. Common genetic determinants of schizophrenia and bipolar disorder have resulted in calls for a reappraisal of these disorders as distinct diagnostic entities (19, 20).

As we began the DSM-V developmental process in 1999, a major concern was to address a range of issues that had emerged over the previous 30 years. These included the basic definition of a mental disorder, the potential for adding dimensional criteria to disorders, the option of separating impairment and diagnostic assessments, the need to address the various expressions of an illness across developmental stages of an entire lifespan, and the need to address differences in mental disorder expression as conditioned by gender and cultural characteristics. The opportunity to evaluate the readiness of neuroscientific advances in pathophysiology, genetics, pharmacogenomics, structural and functional imaging, and neuropsychology was also a priority. All of these areas

were summarized in a series of white papers published as *A Research Agenda for DSM-V* (21). A second volume of white papers was then commissioned by APA to address developmental psychopathology issues across the lifespan (in very young children and in geriatric age groups) as well as gender-related differences in the occurrence and expression of mental disorders—*Age and Gender Considerations in Psychiatric Diagnosis: A Research Agenda for DSM-V* (22).

In the next stage of DSM development, the American Psychiatric Institute for Research and Education was able to work jointly with the World Health Organization (WHO) and leaders of the World Psychiatric Association to develop an NIMH research conference grant application to review the research base for a wide range of mental disorder diagnoses. In addition to NIMH, the National Institute on Drug Abuse (NIDA) and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) agreed to support this effort and to transform it into a cooperative agreement grant in which a steering committee was formed, consisting of representatives from the American Psychiatric Institute for Research and Education, each of the three National Institutes of Health institutes, and WHO. One of us (D.A.R.) was the principal investigator, and the coinvestigators included another author (W.E.N.) and Michael First, as well as Bridget Grant from NIAAA, Wilson Compton from NIDA, Wayne Fenton and then Bruce Cuthbert, followed by Michael Kozak from NIMH, and Benedetto Saraceno, who designated Norman Sartorius to represent WHO. The 5-year grant from 2003 to 2008 supported 13 international conferences, which have produced over 100 scientific articles, many of which have now been compiled into monographs for use as reference volumes for the DSM-V Task Force and the WHO ICD-11 Mental Disorders Advisory Group (21–28). One consistent recommendation that emerged most strongly from the initial methods conference (29, 30), the conference on dimensional measures (31), and the conference on public health was the call for better integration of categorical and dimensional assessment criteria for the next revision of DSM. Previous editions had questioned the clinical feasibility of establishing dimensional measures to assess thresholds and severity of disorders but had adopted "clinically significant distress or impairment" assessment requirements for all disorders in DSM-IV (2, pp. xxi-xxii). The only dimensional component of DSM-IV is axis V, which mixes both symptoms and functional impairment for a Global Assessment of Functioning scale.

In April 2006, the DSM-V Task Force chairperson (D.J.K.) and vice-chairperson (D.A.R.) were named by APA President Steven Sharfstein and Medical Director James Scully. This was followed by nominations of a substantial number of the task force members. However, before members of the task force could be fully approved, the APA Board of Trustees established principles for appointment that required limits on investments and income that could be received from pharmaceutical companies, the requirement that no more than two representatives from any one university participate in the task force or on the same work group, and a vetting and review process by a subcommittee of the Board of Trustees (www.dsm5.org). This process took almost 2 years to complete, with the task force members publicly announced in July 2007 and the work group members announced in May 2008. During the time needed to appoint and review the work group members, the task force was assigned the responsibility of addressing conceptual issues through study groups that would guide the overall development of revisions for specific diagnostic areas.

The focus of the study group on spectrum disorders included assessment of the spectra of mental disorder syndromes that cross existing diagnostic boundaries, recommendations for the overall structure of DSM categories, and identification of 11 potential criteria useful for testing the validity of mental disorder diagnoses—a marked expansion beyond the original criteria proposed by Robins and Guze. A second study group, addressing developmental issues, focused on assuring attention to different expressions of mental disorders that might emerge at progressive ages and human devel-

opmental life stages. A third study group, on gender and culture, was established to assess the different expression or symptom equivalents of mental disorders that are mediated by gender and culture. A fourth study group, on the interface with general medicine, was formed to address approaches that would facilitate a better interface between general medical and mental disorder approaches to diagnosis.

A major initial concern identified by the fourth study group was the need to review disability assessment strategies and instruments that could apply across all of medicine and potentially replace the Global Assessment of Functioning scale, which currently serves as axis V of DSM-IV. As a result of their recommendations, a fifth study group, for functional impairment and disability assessment, was formed that would specifically address the development of global impairment and disability assessment strategies. Finally, the need to address measurement and assessment issues in all of the diagnostic areas undergoing revisions resulted in the establishment of a sixth study group, which will focus on diagnostic assessment instruments. Representatives from each of the work groups will work with a core group of diagnostic instrument experts who can evaluate methods for facilitating measurement-based care for clinicians, making clinical research assessments, and determining rates of mental disorder diagnoses in community populations for epidemiological studies. This final group had its first organizational meeting in January 2009 and will be working with each of the work groups to facilitate a bottoms-up approach for instrument development that will begin with the diagnostic criteria and determine how relevant dimensional metrics can facilitate measurement-based care (32).

Each of the 13 diagnostic area work groups has been responsible for conducting literature reviews that build on the relevant work from phases one and two of the DSM-V development process. A research methods group has been established to review secondary data analyses proposed for funding by APA to assess the evidence base for proposed revisions. The work group process has been supported by conference calls that occur at least monthly, with some work groups having subgroups meeting every 2 weeks. Face-to-face meetings have been supported at APA headquarters at least twice each year, and multiple work groups often meet simultaneously to facilitate cross-group collaborative discussions about issues of overlapping concern. Task force and work group members have participated actively in professional meeting presentations and town hall meetings, conducted surveys of published colleagues in their areas, provided summaries of major work group issues on the DSM-V development web site (www.dsm5.org), and received recommendations from the public and professional colleagues directed to the web site.

As the DSM-V process now moves into a field trial phase of secondary data analysis and primary data collection to test diagnostic options, there will be an intensification of the interactions between the cross-cutting study groups and the diagnostic work groups. Of major concern will be an attempt to address the consequences of continuing to use the original Feighner, RDC, and DSM-III hierarchical structure of "pure" diagnostic categories. The high rate of co-occurrence, the frequent use of the NOS designation, and the heterogeneous mix of conditions within current diagnostic boundaries are all major problems that we would like to address with the revision in DSM-V. The original Robins and Guze validators have not confirmed the wisdom of the current structure. The expanded set of validators recommended by our study group on spectrum disorders provides a framework for considering how disorders might be grouped into larger, supraordinate categories in DSM-V.

Mental disorder syndromes will eventually be redefined to reflect more useful diagnostic categories ("to carve nature at its joints") as well as dimensional discontinuities between disorders and clear thresholds between pathology and normality. However, our immediate task is to set a framework for an evolution of our diagnostic system that can advance our clinical practice and facilitate ongoing testing of the diagnostic criteria

that are intended to be scientific hypotheses, rather than inerrant Biblical scripture. The single most important precondition for moving forward to improve the clinical and scientific utility of DSM-V will be the incorporation of simple dimensional measures for assessing syndromes within broad diagnostic categories and supraordinate dimensions that cross current diagnostic boundaries. Thus, we have decided that one, if not the major, difference between DSM-IV and DSM-V will be the more prominent use of dimensional measures in DSM-V.

The readiness of biological markers to serve as associated features, risk factors, or diagnostic criteria will be of major concern. Likewise, the clinical utility and validity of age-, gender-, and culture-related specifiers or subtypes of disorders will need to be assessed. Measurement-based approaches for field-testing new criteria sets will need to be reviewed and selected as part of the field-test procedures.

As chairpersons and coordinators of this revision process, we are keenly aware of the rapidly changing research base for the description and treatment of mental disorders that include neurodevelopmental, neurocognitive, and addictive disorders. We are reevaluating the structure of the manual itself to facilitate both clinical practice and better research criteria to guide clinical trials, genetics, imaging, and treatment guideline development. More specifically, we anticipate that we will have a structure that contains "receptors" for new biological, neurocognitive, and environmental risk factors as they emerge to guide future research and clinical practice (33). As a result, we expect that DSM-V will be a living document with a permanent revision infrastructure to enable revisions of specific diagnostic areas in which new evidence is replicated and reviewed as ready for adoption.

Such regular revisions are already routine for practice guidelines, for the reviews of new diagnostic categories in International Classification of Diseases, 9th Revision, Clinical Modification (34), and for the American Medical Association Common Procedural Terminology codes (35) used by the Centers for Medicare and Medicaid Services and all of medicine.

We look forward to a vigorous interactive process over the coming 3 years before the publication of DSM-V in May 2012.

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DARREL A. REGIER, M.D., M.P.H.
WILLIAM E. NARROW, M.D., M.P.H.
EMILY A. KUHL, Ph.D.
DAVID J. KUPFER, M.D.