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Classification of Neurocognitive Disorders in DSM-5: A Work in Progress

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Background

The Neurocognitive Disorders Work Group of the American Psychiatric Association's (APA) DSM-5 Task Force began work in April 2008 on their task of proposing revisions to the criteria for the disorders referred to in DSM-IV as Delirium, Dementia, Amnesic and Other Cognitive Disorders. (1) Over the past two years we have, among ourselves and with input from outside consultants and advisors, worked to develop a working draft that was posted on the APA's website www.dsm5.org in February 2010. This draft contained both an overview/rationale for the approach we have taken to date and preliminary criteria for the broadly defined disorders. Without reiterating here all the material posted on the website, we will provide below our approach to the challenges we faced and some rationale for that approach. We are also pleased to have this opportunity to respond publicly both to the many comments directed to the Work Group on and off the website, and to the very thoughtful and constructive commentary provided by Drs. Rabins and Lyketsos in this issue.(2) Finally, while this response is directed to the readership of the *American Journal of Geriatric Psychiatry*, we emphasize that the neurocognitive disorders are by no means restricted to older adults. We continue our efforts to refine and expand these criteria, working towards the final DSM-5 publication date of May 2013.

By way of background, the Task Force began its work mindful of two guiding principles. The first was to propose changes based on advances both in scientific knowledge and in current views and clinical practices, in full awareness of the controversies and challenges within our field. The second was to avoid making changes for the sake of change, bearing in mind that all change is disruptive and potentially expensive. We are fortunate that most of the disorders we address have been the focus of intense and productive scientific research since DSM-IV was published. We also recognized that ours was a category unique within DSM-5 in that, for most disorders within our purview, the underlying pathology is known, and sometimes the etiology as well.

Scope of the mandate

Our first order of business was to define the scope of our activity, i.e., to identify the common defining characteristics of our group of disorders and, accordingly, to choose a new

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name for the group. At one time, these disorders used to be referred to as “organic,” implying that they were the result of known structural brain disease. The term “organic” was intended to distinguish these disorders from all other mental disorders, which were designated as “functional.” Thankfully, psychiatry has since rejected the false disconnects between structure and function or organic and non-organic, and recognized that the brain is the basis of all mental disorders.

In keeping with the DSM convention of defining broad categories based on descriptive rather than etiologic concepts, we first delineated our category as comprised of disorders in which the *primary clinical deficit is in cognitive function*. In addition, we focused on disorders that are *acquired rather than developmental*, i.e., in which impaired cognition has not been present since birth or early life and represents a decline from a previously attained functioning. This distinction is not always a clear one as we will address later.

Naming the broad category

We initially considered labeling this group of disorders “Cognitive Disorders,” as also suggested by Rabins and Lyketsos (2) among others. We are still considering the shorter term, but note several advantages to “*neurocognitive*.” First, we note that cognitive impairments are present in all mental disorders including, for example, schizophrenia, bipolar disorder, and autism. Given our initial mandate, we focused on those disorders where the cognitive deficit is the primary one, and attributable to known structural or metabolic brain disease; hence the designation “*neurocognitive*.” The addition of the prefix “*neuro*” to “*cognitive*” provided added specificity because the term “*cognitive*” has a broader meaning in psychiatry and psychology, covering all mental representations of information processing, even all conscious activity. For example, the cognitive theory of depression envisages depression as characterized by cognitive distortions amenable to correction by cognitive behavior psychotherapy. (3) Further, the term “*cognitive*” is increasingly used in the context of very specific treatment modalities such as cognitive training and cognitive rehabilitation, and in fact a recent editorial in a neurological journal even refers to these treatments as “*cognitive therapy*.” (4) In contrast, the term “*neurocognitive*” describes cognitive functions closely linked to the function of particular brain regions, neural pathways, or cortical/subcortical networks in the brain. In parallel with the designation “*neurocognitive*,” *neuropsychology* is a subdiscipline of psychology that focuses on psychological processes and behaviors related to known structural or metabolic brain disease. For all these reasons, the term *neurocognitive* has seen increasing acceptance in many conditions, e.g. HIV-Associated Neurocognitive Disorders (5) and Post-Operative Neurocognitive Decline. (6)

Identifying the domains

Our next task was to define more specifically the aspects or domains of brain functioning that would be involved in the diagnoses of these neurocognitive disorders. Having listed these (complex attention, learning and memory, executive ability, language, visuoconstructional-perceptual ability, and social cognition), we developed working definitions of the neurocognitive domains and the corresponding impairments in everyday functions that the clinician may elicit or observe. It is difficult to achieve consensus on the precise number and delineation of domains, and other professional groups could and have argued for different approaches; we are considering the proposed alternatives. However, we have received strong support for this initiative, and we hope also to provide, in an Appendix to DSM-5, examples of tools that can be used to measure or rate these domains.

Diagnostic thresholds and the role of functional impairment

The cross-cutting DSM-5 Study Group on Function has emphasized that functional impairment is a consequence of disease/ disorder, and thus cannot be a criterion for diagnosing the disorder, a position consistent with the World Health Organization's publication on the International Classification of Functioning, Disability, and Health (ICF). [7] Therefore, the Study Group has recommended to all DSM-5 Work Groups that no disorders specify functional impairment or disability as a diagnostic criterion; rather, that all disorders, once diagnosed, be rated on the presence and severity of functional impairment using a common measure. This recommendation would have effectively removed one of the traditional diagnostic criteria for dementia, which is that the cognitive deficits be sufficient to interfere with social and occupational functioning. For these disorders, losing such a threshold was controversial for two reasons. First, it would cause potential discontinuity with the previous nomenclature and current clinical practice; second, concerns have been voiced from many quarters about objective cognitive measures being the sole index of disorder.

Responses to our suggested thresholds based on neuropsychological performance norms (e.g. percentiles or standard deviations below the mean) have been divided. Support is based on the objectivity of reliable, standardized measures. Opposition is based on the grounds that neuropsychological testing is not always available to clinicians, and, when it is, appropriate norms do not always exist. In addition, individual variation is such that cross sectional assessment is limited in its ability to evaluate decline. In part for this reason, most Work Group members have supported the retention of a version of the functional threshold for dementia, operationalized as interfering with independence in everyday activity. The distinction between disability and loss of independence is subtle, but we believe it is real and clinically meaningful. The field, however, is moving forward to better measurement instruments that should improve our diagnostic capabilities.

Our current draft proposes requiring both subjective reports/observations and objective assessments of cognitive impairment, especially for the less severe entity we are currently referring to as minor neurocognitive disorder. We have suggested certain thresholds (still evolving) as anchor points for the objective assessments for diagnosis at the syndrome level (major and minor neurocognitive disorder). After the syndromic diagnosis, the next step is to select an etiological subtype, such as Alzheimer's disease (AD) or HIV-associated disorder. Additional criteria to be provided for each etiological subtype are being developed in close collaboration with the relevant expert groups.

Levels of Cognitive Impairment and Subtypes of Neurocognitive Disorders

Next, we debated how to subcategorize disorders within the broad category. A major innovation, for which we have received considerable support, is our proposal to recognize neurocognitive impairment as a focus for diagnosis (and treatment) even if it does not rise to the threshold of affecting everyday functioning. Finding a suitable name for this disorder has been difficult. We have used the term "minor neurocognitive disorder" as a placeholder within the draft criteria, with the more severe disorder being referred to as "major neurocognitive disorder."

Delirium will be as a distinct category from major/minor neurocognitive disorder and is described in more detail below. Both minor and major neurocognitive disorders have, for an example, an AD subtype with additional criteria (see www.dsm5.org for a Table comparing our current proposal and DSM-IV). Stated in reverse, AD can be classified as either major or minor depending upon the syndrome thresholds that a given patient meets. In practice, an

individual's diagnosis could be “Minor Neurocognitive Disorder, AD subtype, or “Major Neurocognitive Disorder, HIV-associated subtype”.

In older adults, the term “Mild Cognitive Impairment” (MCI) has been in use for the past decade, describing a state intermediate in severity between normal aging and dementia (mostly Alzheimer's type), and frequently a precursor to a dementia. (8) Our objective is for this syndromic disorder to encompass a more diverse group of entities, including mild impairments in younger individuals and impairments that may be transient or static or reversible. We share the concern of many commentators that the label “minor” can inadvertently trivialize or delegitimize the condition. Additional suggestions include “Type 1 and Type 2” (analogous to the terminology for diabetes mellitus), “Level 1 and Level 2,” “Stage 1 and Stage 2” (analogous to the terminology for hypertension) or simply “Neurocognitive Disorder 1 and 2” (analogous to the DSM-IV terminology for bipolar disorder). We are acutely aware that the choice of terminology is not trivial and will color the interpretation of both the clinical significance of the minor disorder and the relationship between the minor and major disorders. The distinction is inherently arbitrary, but there are both scientific and clinical reasons to make it. From the standpoint of a scientific nosology, (9) for some disorders (particularly neurodegenerative disorders) etiologic subtyping is more likely to be valid at the major level than at the minor level. For all patients, whether or not the etiology is known (e.g., traumatic brain injury), reserving the term dementia or its equivalent for the major syndrome helps protect patients at the minor level from, for example, inappropriate discrimination or legal consequences.

“Dementia”

Few of our draft revisions have led to as much response as the omission of the term “dementia.” (10) Our intention was to not to eliminate the term dementia entirely from the nomenclature but to subsume entities currently known as dementia under the broad category of major neurocognitive disorders; the category will also include major disorders that rise to the severity threshold of “major” but do not involve severe impairment in two domains (e.g., amnesic disorder). It is important for readers to understand that neurocognitive disorders span several age groups and etiological entities. The term dementia is most often used in Alzheimer's and Lewy Body diseases. Expert groups in cerebrovascular disease are moving away from “Vascular Dementia” and towards “Vascular Cognitive Impairment (11) , encompassing all levels of severity; experts in frontotemporal lobar degeneration also eschew the term dementia,(12,13) and the term dementia is not typically used in younger adults whose cognitive impairment is caused by traumatic brain injury or HIV infection. Some feel that the term is pejorative given its past use, and there is a history of removal from successive versions of DSM terms that seemed to be stigmatizing – e.g., mental retardation - but we ourselves are under no illusions that stigma can be erased by renaming a disorder. We now propose to include the term dementia in parentheses. In this way, it can continue to be used in groups where dementia is the standard term, as in AD, without being imposed in settings where it is not customary.

The case of delirium

We appreciate the apparent inconsistency in describing the whole group of disorders as “neurocognitive” but describing delirium as a distinct disorder separate from the major and minor neurocognitive disorders. Delirium is clearly a neurocognitive disorder related to structural or metabolic brain dysfunction. However, delirium does not lend itself to the major/minor distinction based on severity of impairment, in part because symptom severity fluctuates. Although some contend that a subsyndromal delirium is common and should be recognized, the consensus among experts is that we do not at present have sufficient

evidence to propose criteria for such an entity; we have therefore tried to draft the delirium criteria in a manner that incorporates all levels of severity.⁽¹⁴⁾ Further, delirium often co-exists with a major or minor neurocognitive disorder (such as the AD subtype) in which case the delirium may indeed be caused by AD but could also reflect a comorbid condition such as a urinary tract infection.

Etiological subtypes

In the draft criteria we posted on the website, we had provided as a prototype the proposed criteria for major and minor neurocognitive disorders attributable to Alzheimer's disease. Our goal was to demonstrate how the syndromic diagnosis would be followed by etiologic subtyping, with criteria specific to each entity. At present we plan to provide criteria for neurocognitive disorders with at least the following etiologies: Alzheimer's disease, cerebrovascular disease, frontotemporal lobar degeneration, Lewy Body disease, Huntington's disease, traumatic brain injury (TBI), HIV disease, and possibly prion disease and substance-use-associated disease. For each disease, relevant biomarkers will be listed as diagnostic or supportive evidence as the case may be, to enhance diagnostic specificity. Experts in each of these areas are serving as consultants or advisors to the Work Group, and current diagnostic criteria developed by these expert groups will be mapped on to the major/minor framework of DSM-5. For example, just recently the Alzheimer's Association and the National Institute of Aging have joined in proposing a set of research criteria for Alzheimer's disease. The group has posted their draft criteria on their website (www.alz.org/research/diagnostic_criteria) and are soliciting comments currently. Our intent is to make the DSM-5 criteria as compatible as possible with the criteria developed by expert groups working on AD and other etiologic subtypes. In addition, we will make provision for listing more than one etiologic subtype at a time, recognizing the frequency with which mixed etiology is encountered in clinical practice and population studies.

Etiologic diagnoses will be possible both for the major and minor neurocognitive disorders. As with the AD example, these will be offered together, with examples of how the disorder might look different at each level. In some cases, (particularly for neurodegenerative disorders—as can be seen in the AD example), the criteria for ascribing an etiology will be more stringent at the minor than major level. For instance, minor NCD associated with AD would not be diagnosed without strong genetic or biomarker evidence, since multiple studies have shown that the clinical syndrome alone has poor predictive validity for the development of full blown Alzheimer's dementia.

Acquired vs. developmental?

As noted earlier, we agree with the focus of Rabins and Lyketsos (2) on acquired impairment. However, in recent discussions with the Work Group on Neurodevelopmental Disorders, it has become apparent that this distinction can be difficult to make in practice. Disorders of children and youth are not necessarily “developmental” in the sense of congenital, but rather can be acquired during the developmental phase. For example, infantile strokes or head trauma during childhood can lead to disorders that are conceptually similar to what we are calling neurocognitive disorders. The criteria we have developed emphasize loss of previously acquired cognitive functions, whereas in children (and to a lesser extent adolescents) the manifestation might be a change in the trajectory of normal development. The issue of whether DSM-5 Neurocognitive Disorders are to encompass disorders of children is still being discussed.

Behavioral manifestations of neurocognitive disorders

Most of the neurocognitive disorders have manifestations other than purely cognitive deficits. Apart from changes in “social cognition,” such as the loss of empathy seen in frontotemporal lobar degeneration, behavioral manifestations such as apathy, agitation, delusions, depression, and hallucinations, are not only common but are frequently the primary reason that services are sought for the disorder. Two approaches have been suggested. (15) One, which is a continuum of the DSM-IV system, is to provide “fifth digit” coding for the presence of comorbid symptoms such as delusions or depression, and adding codes for common behavioral manifestations such as agitation and apathy that were not included in DSM-IV. The other has been to create a separate entity for syndromes such as Psychosis or Depression of Alzheimer's Disease. (16,17) This discussion is ongoing.

Cognitive manifestations of other behavioral disorders

As noted earlier and also pointed out by Rabins and Lyketsos (2), many other mental disorders such as schizophrenia, depression, bipolar disorder, and autism, have cognitive manifestations. Despite these very real cognitive deficits, they are not the primary manifestations of the disorders; thus, our strategy has been to exclude them from the Neurocognitive Disorders section. This position is also not free of controversy, but we note that DSM-5 as a whole is considering adding a cognitive dimension to all disorders. Thus, regardless of the diagnosis, the patient's cognitive functioning will be evaluated and documented.

Again, the Work Group must emphasize that our criteria to date are a work in progress. We are most thankful to thoughtful colleagues such as Drs. Rabins and Lyketsos as well as many others who have contributed to this effort.

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