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Preserving the clinician-researcher interface in the age of RDoC: the continuing need for DSM-5/ICD-11 characterization of study populations

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For the past 35 years, clinicians and researchers in the United States have utilized essentially the same diagnostic system for the purposes of describing patients' symptomatic presentations.

Having common diagnostic definitions for both research and clinical practice has had a number of advantages. It has made possible the transfer of information between the ever growing clinical research literature and clinical practice. Because the same criteria are used for diagnosing patients in both settings, it is easier to translate findings of a research paper to the diagnosis and treatment of the next patient that one might see in an office practice. This approach also ensures greater clarity of communication within and among areas of psychiatric practice. Most importantly, this approach facilitates the necessary dialogue and mutual influence between clinicians and researchers.

Recognizing the value of operationalized diagnostic criteria for facilitating communication among clinicians and researchers and improving the reliability of diagnostic assessment, in 1980 the American Psychiatric Association adopted diagnostic criteria as the centerpiece of the DSM-III classification. The expectation was that, in addition to improving clinical assessment, they would be widely adopted by the research community.

Subsequently, most of the psychiatric research literature since DSM-III has been keyed to DSM categories, thus facilitating its application to clinical practice. The hope was that iterative refinement of the diagnostic criteria sets through successive validation studies would eventually elucidate their underlying etiologies (1,2). However, despite years of intensive investigation, researchers using the current DSM paradigm have "failed to identify a single neurobiological phenotypic marker or gene that is useful in making a diagnosis of a major psychiatric disorder" (3, p. 33). While much of this lack of success reflects the enormous complexity and relative inaccessibility of the human brain (4), undoubtedly a major contributor is the fact that the DSM categories are a poor mirror of nature.

Although it has become increasingly evident to researchers over the past 20 years that the DSM categories do not represent valid disease entities, the entrenched hegemony of the DSM system and the conservative nature of review processes has led to researchers being pressured to use the DSM-IV categories "in order to satisfy most grant-making bodies, journal reviewers and editors, and organizers of scientific meetings" (5, p. 156).

One of the main goals of the National institute of Mental Health's RDoC project is to release the research community from the shackles of the DSM/ICD categorical system by providing an alternative framework for conducting research in terms of fundamental circuit-based behavior dimensions. Given its role as the premier governmental body funding psychiatric research in the United States, the NIMH is uniquely positioned to incentivize researchers to adopt such a framework and thus it is likely that most NIMH-funded research over the next decade will adopt the RDoC framework.

While this has the potential to be a positive step that facilitates the development of the requisite research literature "to attain groundbreaking nosological approaches in the future that are based upon genetics, other aspects of neurobiology, and behavioral science" (6), it has the potential drawback of impeding clinicians' ability to make clinical sense of such research and apply it to their patients, whose clinical presentations will likely continue for the foreseeable future to be thought of in terms of the DSM/ICD-type categories.

Indeed, one of the central thrusts of RDoC is to discourage the use of the DSM/ICD syndromal constructs by researchers in either research design or subject selection, except insofar as is necessary during the research community's "transition" from the DSM/ICD to RDoC. As noted by Cuthbert, many if not most of the symptoms that form the basis for DSM psychiatric assessment and treatment do not appear in the

RDoC matrix, impeding clinicians' ability to relate to RDoC-themed research studies.

So what can be done to mitigate this situation? Although in his paper Cuthbert repeatedly discusses the need for a "transition" from DSM/ICD to RDoC and provides concrete suggestions for how this may be done (e.g., incorporating "various combinations of RDoC constructs and DSM/ICD disorder categories in experiments"), according to Cuthbert such "transitional research designs are best regarded as temporary heuristics for a limited number of studies".

Rather than viewing the retention of elements of the DSM/ICD system as heuristics to be phased out as soon as possible, it should be a required part of any RDoC-oriented research project to provide linkages or crosswalks between the RDoC design and the DSM/ICD classifications. At a minimum, study populations used in RDoC-themed protocols should also be described in terms of DSM-5/ICD-11 diagnoses, if for no other reason than to provide a touchstone to the clinician for appreciating the types of subjects included in the study.

For example, according to Cuthbert, a "prototypical RDoC design... would include subjects with a wide range of normal-to-impaired functioning with respect to the dimensional constructs of interest". It would be relatively straightforward to diagnostically assess these subjects, not for the purposes of the experimental design but to characterize the study population in terms understandable by clinicians.

Only by explicitly building bridges between the DSM/ICD and RDoC worlds can the field continue to promote some level of communication and interaction between clinicians and researchers.

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RDoC+: taking translation seriously

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Cuthbert's paper gives a helpfully detailed introduction to the RDoC framework for assimilating neuroscientific findings, aimed, ultimately, at more effective translation of research into practice (1). In this commentary, I take a step back from the details to look at RDoC's underpinning theory and at the implications of that theory for RDoC's translational aims.

The theory underpinning RDoC is that mental disorders are analogous to disorders in other areas of medicine such as cardiology. Cuthbert, for example, compares RDoC's dimensions with (the also dimensional) hypertension (1). Insel, too, draws on the analogy at several points in his blog introducing RDoC as Director of the National Institute of Mental Health (NIMH). "Imagine – he writes, referring specifically to DSM's failure to translate research into practice – deciding that EKGs were not useful because many patients with chest pain did not have EKG changes" (2).

The implication, then, is that, in focussing on pathological mechanisms, RDoC takes the analogy with medicine more seriously than DSM. The concern, though, is that by the same token RDoC is at risk of neglecting the symptom side of the theory. Medicine is of course concerned equally with symptoms and with underlying mechanisms. Neglecting *either* side of the theory, therefore, neglecting either symptoms or mechanisms, could prove equally fatal to effective translation of research into practice.

To be clear, the concern here is not that symptoms (broadly construed) are actually excluded from RDoC. True, the particular symptoms on which DSM is based are not in RDoC (1). But "observable behavior" was included in NIMH's original strategic brief; symptoms are covered in RDoC itself (respectively by "self reports" and "behavior"); psychopathology is flagged in the title of Cuthbert's commentary; and, as Cuthbert indicates (1), "impairments that patients experience in their lives" were important in the development of the RDoC framework. So, the concern is not that symptoms are excluded but rather that, compared with mechanisms, RDoC is at risk of not taking them seriously enough.

Thus, Cuthbert's examples – reward, threat and memory (1) – although certainly showing the value of more precise understanding of symptoms as well as of brain mechanisms, all regard relatively straightforward aspects of subjectivity compared with the subtleties of such staples of mental disorder as belief, perception, volition and emotion. Insel, similarly, in his reference to EKGs, writes as though heart disease were diagnosed clinically by chest pain as such, whereas it is specifically *anginal* pain that is diagnostic of heart disease,