From Description to Mechanism: Advances in Psychiatric Classification in ICD, DSM, and RDoC
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Dr. Lewis-Fernández has no disclosures to report.
Learning Objective

Review the uses and limitations of descriptive psychiatric nosologies.
Present three classification systems and review four key areas that any nosology must address.
Main problem: Psychiatric classification systems based on signs and symptoms (ICD-11, DSM-5) are increasingly considered invalid, but are in daily use.

What should clinicians do about that?

How should our nosologies evolve?
Outline

● Uses and limitations of descriptive nosologies
● Three solutions: ICD, DSM, and RDoC
● Four areas any nosology must address
  ● Etiology
  ● Dimensions and categories
  ● Thresholds
  ● Comorbidity
● Conclusions and clinical implications

Crisis in Descriptive Psychiatric Nosology

- Daily clinical use of “descriptive” nosologies
- Critiques from biological and cultural psychiatry
- Inadvertent reification
  - Symptoms as disorder, not signs of disorder
- Development of NIMH Research Domain Criteria (2009)
Uses of Descriptive Nosologies

- Determining what is a “case”
- Reporting health statistics
- Implementing administrative aspects of care
- Communicating clinically within and across countries
- Guiding clinical trials (before RDoC)
### Relationship Between Criteria and Disorder

<table>
<thead>
<tr>
<th>Constitutive</th>
<th>Indexical</th>
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<tbody>
<tr>
<td>The criteria definitively define</td>
<td>The criteria are fallible indices of a disorder understood</td>
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<tr>
<td>the disorder. Having a disorder is</td>
<td>as a hypothetical tentative diagnostic construct.</td>
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<td>nothing more than meeting the</td>
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<tr>
<td>criteria.</td>
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</table>

The constitutive position is premature and reflects a conceptual error. It assumes a definitiveness and a literalism about the nature of our criteria that is far beyond our current knowledge. The indexical position with its tentativeness and modesty accurately reflects the current state of our field.

Kenneth Kendler  
Psychological Medicine, 2017
Why Does This Matter?

- Diagnoses do not indicate discrete diseases
- Diagnoses are labels – “maps” – of more complex realities
- Focusing on the maps instead of the underlying processes:
  - Ignores dimensional nature of psychopathology
  - Obscures variations due to culture, age, gender, class, etc.
  - Minimizes pathogenic social structures
  - Hinders discovery of illness mechanisms
  - Impedes prevention of illness onset and morbidity
  - Limits prognostic ability
- Resulting in limited therapeutic efficacy
How to proceed?
Different Solutions

- International Classification of Diseases
- Diagnostic & Statistical Manual of Mental Disorders
- Research Domain Criteria
Evolution of ICD and DSM

- List of mortality etiologies → broader classification
- ICD-8 (1965) / DSM-II (1968)
  - Harmonization of diagnostic categories
  - Hierarchical progression from neurosis to psychosis
  - Increasing standardization
  - Decreasing diagnostic hierarchies
ICD/DSM Priorities

<table>
<thead>
<tr>
<th>ICD-9 to ICD-11</th>
<th>DSM-III to DSM-5</th>
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<tbody>
<tr>
<td>Maximize global utility</td>
<td>Maximize reliability</td>
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<tr>
<td>● Essential features, diagnostic guidelines, inclusions/exclusions</td>
<td>● Criteria: signs/symptoms, specific thresholds, exclusions</td>
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<tr>
<td>● Designed for flexible application in diverse clinical &amp; cultural settings</td>
<td>● Designed for identifying valid underlying diseases</td>
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<tr>
<td>● Multiple documents for various uses (e.g., CDDG, primary care, research)</td>
<td>● Single document for all uses</td>
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RDoC (2009)

- NIMH long-term solution
- Framework for research, not yet a nosology
- Based on basic components of mental and emotional activity
- Nosology “from the ground up” but vetted “from the top down”
## Domains/Constructs and Units of Analysis

**Draft Research Domain Criteria Matrix**

<table>
<thead>
<tr>
<th>Domains/Constructs</th>
<th>Genes</th>
<th>Molecules</th>
<th>Cells</th>
<th>Circuits</th>
<th>Physiology</th>
<th>Behavior</th>
<th>Self-Reports</th>
<th>Paradigms</th>
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<td>Acute threat (&quot;fear&quot;)</td>
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<td>Potential threat (&quot;anxiety&quot;)</td>
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<td>Sustained threat</td>
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<td>Frustrative nonreward</td>
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<td><strong>Positive Valence Systems</strong></td>
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<td>Approach motivation</td>
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<td>Initial responsiveness to reward</td>
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<td>Reward learning</td>
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<td>Habit</td>
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<td><strong>Cognitive Systems</strong></td>
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<td>Declarative memory</td>
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<td>Language behavior</td>
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<td>Cognitive (effortful) control</td>
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<td><strong>Systems for Social Processes</strong></td>
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<td>Affiliation/Separation</td>
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<td>Self &amp; Other</td>
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<td>Social dominance</td>
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<td><strong>Arousal/Regulatory Systems</strong></td>
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<td>Arousal &amp; regulation (multiple)</td>
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<td>Resting state activity</td>
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Brain Circuits: Pathways to Pathophysiology

The RDoC Framework’s Dimensions
Critiques of RDoC

- Dominant focus on neural circuitry
  - High risk of ontological & epistemological reductionism

- Underdeveloped levels of environment & development
  - Brain develops in interaction with socio-cultural context
  - This level of interaction is not reducible to neural circuitry

- Limited attention to emergent properties of complex systems
  - Same biological substrates can give rise to different outcomes

Critiques of RDoC

- Over-reliance on animal models
  - Poor modeling of social/reflective influences on psychopathology

- Multiple measurement limitations, including low reliability

- Very long timeframe, only partly acknowledged
  - Until then, how to advance clinical research?

Four Key Areas That Any Nosology Must Address

1. Etiology
2. Dimensions and categories
3. Thresholds
4. Comorbidity
Etiology

- Psychopathology is multi-causal
  - Biological, psychological, social, cultural
- Causes are never fully “primary”
- Causes interact in complex ways & are always in flux
  - Epigenetics
- Problems:
  - Capturing multiple causes
  - Indicating interactions
## Etiology

<table>
<thead>
<tr>
<th>ICD-11</th>
<th>DSM-5</th>
<th>RDoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Limited biological etiology</td>
<td>• Text on Risk/Prognostic factors &amp; Culture/Gender</td>
<td>• Primarily biological</td>
</tr>
<tr>
<td>• No intrapsychic causes &amp; organic/psychogenic distinction</td>
<td>• Cultural Formulation Interview</td>
<td>• Limited environmental</td>
</tr>
<tr>
<td>• Etiological qualifiers</td>
<td>• Other conditions that may be focus of clinical attention</td>
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<tr>
<td>• Coding options</td>
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<tr>
<td>• <em>International Classification of Functioning, Disability and Health</em> (ICF, 2001)</td>
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</table>

Dimensions and Categories

- Severity gradient of mental illness is continuous, not “all or none”
  - Severity is an essential feature
- Diagnostic categories are often multidimensional
- Supraordinate dimensions?
- Syndromes are also informative
- Problem:
  - Capturing the dual character of psychopathology

## Dimensions and Categories

<table>
<thead>
<tr>
<th>ICD-11</th>
<th>DSM-5</th>
<th>RDoC</th>
</tr>
</thead>
</table>
| • Dimensional ratings of severity & disorder components  
  • Elimination of some subtypes | • Severity scales  
  • Disorder & cross-cutting  
  • Hybrid dimensional/ categorical personality disorder diagnosis | • Healthy to severely pathological range |

Though no man can draw a stroke between the confines of day and night, yet light and darkness are upon the whole tolerably distinguishable

Edmund Burke
*Thoughts on the Present Discontents*, 1770
Thresholds

- Thresholds are essential
- Somewhat arbitrary but very consequential
- Multiple thresholds must be considered at once
- Risk of false positives
- Solutions can confound disorder and outcome

Problems:
- Over-specification
- Medicalization
## Thresholds

<table>
<thead>
<tr>
<th>ICD-11</th>
<th>DSM-5</th>
<th>RDoC</th>
</tr>
</thead>
</table>
| • Definition of mental disorder  
• Limited inclusion of “distress or impairment” | • Criteria & subcriteria  
• One threshold for all uses  
• Intended for research  
• Greater use of clinical significance criterion | • Agnostic to current thresholds  
• Search for empirical thresholds |
| • Essential/associated features  
• Varying thresholds by use  
• Not intended for research  
• Text on Boundary with Normality | | |

12-Month Prevalence of Social Anxiety Disorder

CIDI = Composite International Diagnostic Interview
Comorbidity

- Having 2+ disorders at the same time
- The rule rather than the exception
- Co-occurrence, artifact, or due to common underlying processes?
- Direct relationship between severity and comorbidity
- Value of specified disorders?

Problems:
- Artefactual comorbidity
- Missing important symptoms
## Comorbidity

<table>
<thead>
<tr>
<th>ICD-11</th>
<th>DSM-5</th>
<th>RDoC</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Limited hierarchy rules</td>
<td>• Hybrid proposal for PD</td>
<td>• Brain-behavior constructs that cut across diagnostic boundaries</td>
</tr>
<tr>
<td>• Pragmatic, not literal, solutions</td>
<td>• Spectra</td>
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<tr>
<td>• Single diagnosis of PD</td>
<td>• Text on DDx &amp; Comorbidity</td>
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<tr>
<td>• Text on Boundary with other Disorders</td>
<td>• Cross-cutting symptoms</td>
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<tr>
<td>• Coding techniques</td>
<td>• Relationship to Cultural Concepts of Distress</td>
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Conclusions

- ICD-11 & DSM-5:
  - Re-structured nosology
  - Introduced spectra
  - Provided “extra-diagnostic” ways to capture complexity
  - Incorporated dimensionality
  - Described developmental, socio-cultural & gender aspects
- But much more is left to be done
- RDoC is not yet a nosology
Strengths and Weaknesses

● Nosologies are shaped by uses, histories, and constituencies

● ICD & DSM
  − Categorical definitions with limited dimensionality

● ICD
  − Flexibility

● DSM
  − Standardization

● RDoC
  − Focused on dimensionality & etiology but at high risk of reductionism
Practical implications

“Unless and until a better alternative comes along, we appear to be stuck with the DSM and ICD, whether we like it or not.”

Scott Lilienfeld
Behaviour Research & Therapy, 2014

● Healthy skepticism
● A limited map, rather than an empirical guide
World Association of Cultural Psychiatry

5th World Congress
October 11-13, 2018
New York City

Wacp2018.org

Achieving Global Mental Health Equity
Making Cultural Psychiatry Count
Questions & Answers