Refining Our Diagnostic System—Cake or Comorbid Bread and Fudge?

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The American Psychiatric Association recently released its recommendations for DSM-V1 and ignited another round of vigorous debate as to how our field should categorize the vast array of behavioral problems that present for assessment and treatment. Although the public can easily dismiss this process as merely academic reshuffling of the same deck, the clinical and research implications for all that flows downstream of our diagnostic system are enormous. The process on which our taxonomy is based has traditionally been one of expert consensus, yet we have been charged to use empirical data to help us, as they say, “carve at the joints.” This challenge means deciphering the “horizontal” boundaries between one disorder as well as another and the “vertical” boundaries between disease and traits.2,3 Answering this call has been an explosion of studies that draw on diverse traditions, perspectives, and techniques. Our field is fortunate to have such an array of talent focusing from different viewpoints on this important issue; at the same time, it is becoming increasingly clear that the diversity and mixed terminology these different perspectives bring is a formidable obstacle to overcome. This month’s journal offers four very timely articles that use a longitudinal design to examine the existing definitions of various disruptive behavioral disorders. All four articles present new and important data that challenge existing boundaries. All four articles also struggle to overcome the confusing taxonomic structure that surrounds not just the DSM disorders but also the constructs used to validate those disorders.

Stringaris and colleagues4 ask the question, “What is a disruptive behavior disorder?” Based on some of their previous research, they have proposed that the features of oppositional defiant disorder (ODD) can be broken down into different components they describe as being related to child temperament such as emotional reactivity and activity level. Using data from the Avon Longitudinal Study of Parents and Children, they hypothesize that these dimensions will predict commonly encountered “comorbidity” patterns observed with ODD. Around age 3 years, a child’s temperament was assessed using the Emotionality Activity and Sociability scale by the child’s mother. Approximately 4 years later, psychiatric diagnoses were obtained using a structured interview with mothers and teachers. The dimension of activity was strongly related to the diagnostic cluster of ODD plus attention-deficit/hyperactivity disorder (ADHD), whereas the dimension of emotionality was strongly related to the combination of ODD plus an internalizing (mood or anxiety) disorder. The authors synthesized their results along a convergence-divergence model, meaning that different temperamental paths can converge in the diagnosis of ODD but also that different dimensions within the disorder can account for the divergent comorbidity patterns that are observed.

From the Pittsburgh Girls Study, Burke and colleagues5 undertook a similar goal using a slightly different framework. Their focus in this older sample was the often observed combination of conduct disorder and depression and its relation to early ODD. They divide the symptoms of ODD into three dimensions based on factor analysis: negative affect, oppositionality, and antagonistic behavior. Burke and colleagues describe the negative affect dimension without invoking the concept of temperament, although one of the major child temperament dimensions has been labeled negative affectivity.6 As hypothesized, the negative affect dimension predicted later depression, whereas the oppositional and antagonistic behavior dimensions predicted CD, controlling for race.
These groups argue, somewhat ironically, that certain combinations or disorders, such as CD plus depression, offer a more unified construct than either diagnosis alone. Both studies offer a more complex procedure of “lumping and splitting” than is often proposed and use empirical techniques such as factor analysis to bolster their position. However, Stringaris and colleagues bring in the concept of temperament and its own taxonomic structure in the model, whereas Burke and colleagues stay within the realm of diagnostic criteria. This difference may be due to the preschool age of the sample in the study by Stringaris et al.: a time when behavior has traditionally been chalked up to temperament rather than psychiatric symptoms per se.

An increased appreciation of the emotional component of disruptive behavior disorders was similarly investigated by Barkley and Fischer in their prospective study of adults who had been diagnosed with ADHD as children. The authors used the Emotional Impulsiveness Scale to assess the construct, which was not framed as a dimension of personality/temperament or as a different type of psychopathology despite many items being very similar to the criteria for ODD. Emotional impulsiveness was found to be a major factor in those with persistent ADHD and was found to make an independent association with impairment in a number of important areas such as employment, education, driving, being jailed, and financial difficulties. The authors argue that emotional impulsiveness should be considered a central component of ADHD, with important prognostic implications.

Adding further layers to these diagnostic questions, Sijtsema and colleagues present physiologic data regarding low heart rate and its long-heralded relations with antisocial behavior. The data come from the TRacking Adolescents Individual Lives Study (TRAILS), an important study based on community samples in the northern part of the Netherlands that continues to follow a group of 2,230 adolescents across numerous waves and assessment domains using a multiple-informant design. In this study, the authors studied the personality dimensions of behavioral inhibition (defined in this case more like neuroticism or emotional regulation than temperamental shyness) and sensation-seeking at ages 11, 13.5, and 16 years using different instruments, whereas aggression and rule-breaking behavior was assessed using the Youth Self Report. Resting supine heart rate was assessed at age 11 years. For boys, lower heart rate was predictive of later aggression and rule-breaking and higher levels of sensation-seeking or adventurism. The authors postulated that the sensation-seeking mediation of the relations between heart rate and antisocial behavior varied by age, although this finding was complicated by their use of different personality assessments across waves.

As provocative as these data are, the studies illustrate how difficult it can be to explain symptom patterns or etiology using factors that themselves sound very similar to what is being studied. In the TRAILS study, for example, sensation-seeking and behavioral inhibition are framed as personality variables predicting psychopathology, which in this case is antisocial behavior. However, antisocial traits themselves have, in other studies, been considered personality or temperament dimensions that predict other diagnoses. Around and around we go.

In other areas of medicine, the process, at least conceptually, is much easier to grasp. High cholesterol, for example, is a risk factor for heart disease and it is apparent that the risk factor and the disease are qualitatively distinct entities. What are we really saying, however, when the activity level dimension of a temperament scale predicts hyperactivity as measured by a psychopathology scale, especially when the same parent rates both? How should we optimally handle the realization that phrases such as “loses temper” show up on items that purport to measure temperament, personality, DSM diagnostic criteria, and supposedly independent constructs such as emotional impulsiveness at the same time?

Probably the first step is to recognize fully this quandary and be wary of the temptation to assume that just because a particular scale says it is measuring something different than another scale, it actually is. The second step might be to stand down a bit from the territorial disputes regarding the label attached to a construct such as emotional regulation or activity level. If we remember that these phenomena, whether they be temperament traits, personality psychopathology, or Axis 1 yes/no disease symptoms, all have to reside in the same brain, the exercise becomes a bit easier. Then we can begin to bring our considerable research firepower such as molecular genetic analysis, neuroimaging, and multivariate statistics to bear in helping us determine how
all the pieces fit together. Using food analogies, one might compare some of the current debates to worrying if a tomato is really a fruit or a vegetable, or whether a chocolate cake is better understood as comorbid bread and fudge. Our challenge is to uncover the key ingredients in child development and the ways those ingredients are combined and cooked to produce a culinary masterpiece, a kitchen disaster, and everything in between. 

REFERENCES