INTRODUCTION

Toward Validation of a Structural Approach to Conceptualizing Psychopathology: A Special Section of the Journal of Abnormal Psychology

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Traditionally, psychopathology has been conceptualized in terms of polythetic categories derived from committee deliberations and enshrined in authoritative psychiatric nosologies—most notably the Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association [APA], 2013). As the limitations of this form of classification have become evident, empirical data have been increasingly relied upon to investigate the structure of psychopathology. These efforts have borne fruit in terms of an increasingly consistent set of psychopathological constructs closely connected with similar personality constructs. However, the work of validating these constructs using convergent sources of data is an ongoing enterprise. This special section collects several new efforts to use structural approaches to study the validity of this empirically based organizational scheme for psychopathology. Inasmuch as a structural approach reflects the natural organization of psychopathology, it has great potential to facilitate comprehensive organization of information on the correlates of psychopathology, providing evidence for the convergent and discriminant validity of an empirical approach to classification. Here, we highlight several themes that emerge from this burgeoning literature.

General Scientific Summary

The classical categories of authoritative nosologies are giving way to more empirical classification schemes in psychopathology research. This special section aims to help catalyze this process by bringing together efforts to validate quantitatively derived dimensions of psychopathology.

Keywords: psychopathology, classification, Research Domain Criteria (RDoC), nosology, validity

Psychopathology research is at a crossroads. Categorical diagnosis derived from authority is generally giving way to more empirical classification schemes. This process is neither smooth nor straightforward and involves many complex considerations. For example, few would argue for classification schemes that are incompatible with data, but what, exactly, does it mean for a classification scheme to be “data based,” and how would we know if such a “data-based scheme” is valid? In our roles as editors, we undertook this special section because we wanted to pose these questions and contemplate the response from the field.

As in the call for papers for this special section, we conceptualize a structural approach as using multivariate data to construct an explicit, quantitative model of psychopathology. Given this basic multivariate and quantitative focus—fundamental to any approach that claims to be grounded in data—many topics and strategies are naturally encompassed. This depth and breadth of content becomes apparent in contemplating the contributions we were ultimately able to include in this special section.

In many ways, this special section continues to develop themes two of us (MacDonald and Krueger) worked to articulate in a separate, recent special section of the Journal of Abnormal Psychology, titled “Mapping the Country Within: A Special Section on Reconceptualizing the Classification of Mental Disorders” (MacDonald & Krueger, 2013). In the introduction to that special section, we compared the evolution of nosology with cartography in the age of exploration. One thing this current special section
makes clear is that some broad “continental outlines”—that is, broad groupings of psychopathological phenomena, such as the internalizing and externalizing spectrums—are replicable and established. At the same time, detailed features of those “large continents” are still being filled in (including where and how they intersect in a Pangaea-like general factor of psychopathology), other likely continents are topics of active inquiry (e.g., the psychosis spectrum), and tools and approaches for navigating around those continents are still emerging (e.g., ways of using a broad map to pursue validity research and to understand etiology and pathophysiology). In this brief introduction, rather than separately re- prising each individual contribution, we will instead delineate some overarching themes as we encountered them in assembling the papers for this special section.

Convergence Across Diverse Methods and Samples

Much of the literature on the empirical classification of psychopathology derives from assessment instruments designed to codify and operationalize experiences of the self and others. This is unequivocally necessary because manifest psychopathology consists of quintessentially human experiences of thought, emotion, and behavior that are experienced by the self or witnessed by informants. Thus, a fundamental challenge for psychopathology research is to connect systematic assessments of diverse human psychopathological experiences, in diverse groups, with data derived from other methods. The papers in this special section take up this challenge, consistent with our editorial emphasis on validation. For example, rather than being based exclusively on self-reports of psychopathology obtained from unrelated adults, this collection of papers takes on the challenge of working across methods, samples, and techniques. Papers in this special section encompass investigation of white-matter microstructure via human neuroimaging (Grazioplene, Chavez, Rustichini, & DeYoung, 2016), error processing via neurophysiological assessment (Kotov, Foti, et al., 2016), the study of temporally dynamic processes via diary assessment (Roche, Jacobson, & Pincus, 2016), cognitive tasks (Fotianos-Ryan et al., 2016), stressful life events interviews (Conway, Starr, Espejo, Brennan, & Hammen, 2016), reviews of files from correctional facilities (Sellbom, 2016), temperamentals systems in children (Slobodskaya, 2016), biometrical modeling (Waldman, Poore, van Hulle, Rathouz, & Lahey, 2016), and psychosocial functioning interviews (Wright, Hopwood, Skodol, & Morey, 2016).

A key to systematizing and working with this diversity productively is to focus on psychopathology constructs that encompass thematically coherent domains of human experience (e.g., psychotic experiences) and elaborating on our understanding of the nomological networks of those constructs. The papers in this special section show that this endeavor is fruitful because it is systematic and multivariate, as opposed to piecemeal and bivariate (cf. Markon & Jonas, 2016; Sanislow, 2016). Rather than studying single measures in putative categories of persons in insular litera- tures (e.g., insular child and adult literatures, insular literatures focused on narrow diagnostic categories compared with healthy controls), this collection of papers studies dimensions of psychopathological experience organized within quantified models. This strategy helps us to understand the nature of psychopathology by connecting dimensions of human psychopathological experience with the ways in which those dimensions are manifest in multiple assessment modalities. To pick an example, psychotic experiences are manifest not only in characteristic patterns of thought disturbance but also in the correlates of these patterns in white-matter microstructure (Grazioplene et al., 2016) and error-related brain activity (Kotov, Foti, et al., 2016). Moreover, these papers begin to take on the challenging task of delineating the boundaries of these constructs by studying multiple dimensions simultaneously, with an eye toward both convergent and discriminant validity of both more broad and more narrow dimensions within a coherent spec- trum of human variation.

Breadth of Coverage and Hierarchy

Along these lines, another remarkable feature of this collection of papers is the breadth of psychopathology they cover. In our view, this breadth is central to making progress in understanding psychopathology because psychopathological experiences do not segregate neatly into specific categorical bins. The challenge that derives from this realization of “multimorbidity” is how to parse psychopathological experiences meaningfully and systematically. As the papers in this special section illustrate, a key concept in parsing both breadth and specificity in psychopathology is the concept of hierarchy. These papers not only acknowledge but also endeavor to study both broad and narrow dimensions, arranged with reference to each other in a systematic hierarchy. Indeed, there is a basic emphasis in this special section on hierarchy as a construct in itself, as opposed to generally unproductive arguments about the “correct” level of “resolution” or “grain size” in con- ceptualizing human individual differences in psychopathological experience (Lahey, Krueger, Rathouz, Waldman, & Zald, in press; Markon & Jonas, 2016). Indeed, the importance of hierarchy is emphasized by the name of the newly formed Hierarchical Taxonomy of Psychopathology (HiTOP) Consortium (Kotov, Krueger, et al., 2016; https://medicine.stonybrookmedicine.edu/HiTOP). HiTOP is intended to catalyze and systematize efforts to delineate a quantitative taxonomy of psychopathology, such as those described in this special section, and we encourage readers to peruse the HiTOP web page and to contemplate getting directly involved in the HiTOP effort.

Nontrivial Sample Sizes and Replicability

Psychological science is currently facing a replicability crisis. The extent to which concerns about replicability apply to psycho- pathology research is not yet well understood. Indeed, two of us (Tackett and Krueger) have recently contributed to efforts to encourage clinical psychological scientists to “lean in” to the replicability conversation that is taking place in other areas of psychological science (Tackett et al., 2016). Nevertheless, the papers in this special section do seem to delineate generally replicable (or at least reproducible) structural phenomena, partly because they are based on nontrivial samples. Even the papers employing costly assessment procedures (e.g., human neuroimaging) are based on at least hundreds of observations and are tethered closely to replicable dimensional phenotypes. The dimensional spectrum constructs that frame this special section are observed robustly (Kotov, Krueger, et al., 2016; Lahey et al., in press), providing a solid edifice on which to build evidence for the
validity of a dimensional approach to delineating psychopathological phenotypes.

The Intersection Between Empirical Inquiry and Authoritative Bodies

Authoritative bodies, such as the U.S. National Institute of Mental Health (NIMH) and the American Psychiatric Association (APA), find themselves in complex situations in the contemporary scholarly environment. In a previous era, there were tight political links between the NIMH and APA, centered on the diagnostic categories of the APA’s Diagnostic and Statistical Manual of Mental Disorders (DSM; APA, 2013). In the contemporary era, that paradigm is breaking down, or at least fraying in ways that can readily be observed in the literature. It is probably not too much of an exaggeration to say that psychopathology research is in a crisis state, in the sense in which Kuhn (2012) used that term to describe a postparadigmatic time in the history of a scientific discipline when a substantial diversity of perspectives is observed. Crisis states emerge from hard-to-ignore data that do not square with a heretofore-dominant paradigm. For example, a paradigm focused around categories of psychopathology derived from clinical expertise cannot readily encompass extensive evidence that psychopathology is dimensional in nature, nor can it readily encompass the fundamental role of data (as opposed to expertise) in delineating constructs.

This Kuhnian process creates differences in emphasis between the NIMH, APA, and other authoritative bodies (e.g., the World Health Organization [WHO]), thereby allowing substantial diversity to flourish, as can be seen in the papers in this special section. To pick an illustrative example, Sanislow (2016) discusses strategies for reconciling empirical classification of human psychopathology with the efforts of the NIMH to direct investigators toward neuroscientific research on human and animal faculties via the Research Domain Criteria (RDoC) project. The RDoC project contrasts in some ways with multivariate psychopathology research because the RDoC project emphasizes documenting bivariate associations within the cells of a matrix not organized by empirical evidence regarding the structure of human individual differences. Similarly, to pick another example of moving away from classical categories while still making reference to an authoritative document (the DSM in this case), Roche et al. (2016) focused their efforts around the DSM–5’s dimensionally oriented alternative model of personality disorders (PDs). Nevertheless, these perspectives (e.g., the empirically based dimensions of the DSM–5’s alternative PD model and the expert-derived RDoC domain names) are not immediately commensurate, even if they share some key forward-thinking features (e.g., an emphasis on dimensions). Indeed, political friction between the NIMH and APA has played a notable role in the history of the DSM–5, as detailed in narrative historical accounts provided by participants on the front lines of the DSM revision effort (Zachar, Krueger, & Kendler, 2016). Such friction is often observed in the history of scientific disciplines when a previously dominant paradigm experiences difficulties encompassing robust empirical phenomena that challenge basic tenets (e.g., authoritative assertions of the existence of hundreds of separate psychopathological categories contrasted with extensive evidence for a smaller number of hierarchically organized dimensions; cf. Kuhn, 2012). How (or even if) a more singular and coherent paradigm will reemerge in psychopathology research remains unclear as of this writing. This may or may not be necessary (or even desirable) because authoritative pronouncements (e.g., regarding the categories of the DSM or the words used to name the rows and columns of the RDoC matrix) tend to insidiously promote premature reification (Markon, 2013), even if they also provide targets for iterative empirical inquiry (Krueger, 2013). From our editorial perspective, and reflecting on the papers in this special section, we would emphasize the importance of open-mindedness and diversity of methods and samples at this stage, combined with multivariate quantitative rigor. Multivariate quantitative psychopathology research in diverse samples, using diverse methods, will provide much evidence to contemplate and digest as the field debates how to connect the science of psychopathology classification with the needs and goals of authoritative bodies such as the NIMH and APA.

References


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