Commentary

CBT AND THE FUTURE OF PERSONALIZED TREATMENT: A PROPOSAL

Johanna Thompson-Hollands, M.A.,* Shannon Sauer-Zavala, Ph.D., and David H. Barlow, Ph.D.

Over the past several decades, the diagnosis of mental disorders has been characterized by classifying psychopathology into as many discrete diagnoses as can be reliability identified (e.g., APA, 2013). There is increasing evidence, however, that this approach to diagnosis may come at the expense of validity as trivial symptom-level differences are emphasized with little regard for common core mechanisms. Traditionally, cognitive-behavioral (CBT) approaches to treating psychopathology have followed a diagnosis-specific approach such that unique protocols have been developed for most disorders. Recent advances in CBT have suggested that targeting transdiagnostic mechanisms responsible for the development and maintenance of a wider range of psychopathology may be a more efficient approach to treatment than addressing disorder symptoms themselves. In order to create a more personalized treatment package, we propose establishing a profile for each patient that quantifies dysfunction in terms of empirically-supported underlying mechanisms; we further suggest that data from this profile be used to select CBT modules specific to the core mechanisms maintaining an individual patient's symptoms. Depression and Anxiety 31:909–911, 2014.

Key words: *Transdiagnostic; treatment; modular treatments; personalized treatments*

The trajectory of cognitive-behavioral therapy (CBT) traces the development and maturation of the science of nosology. In the 1980s following the publication of *DSM-III*, and continuing through the end of the last century with the fourth and fifth editions of that text, nosologists focused on "splitting" disorders into increasingly fine gradations. The resulting increase in discrete diagnostic categories paved the way for correspondingly specific CBT protocols. The advent of clearly delineated protocols designed to address specific symptoms allowed for some of the first well-specified clinical trials by providing clear criteria for assessing treatment response, therefore making possible necessary replications and extensions in later trials. Such research established CBT as efficacious across many populations and settings (Barlow, 2014); however, the large number of treatment manuals became a barrier to dissemination rather than a balm, as clinicians were faced with potentially dozens of protocols to master in order to provide evidence-based treatment for each *DSM* diagnosis. Additionally, multiple "copycat" manuals have sprung up for any given disorder (e.g., panic disorder) that often differ in trivial ways, with no evidence to support one or the other variation. Finally, a *DSM*-driven approach to treatment does not provide guidance on how to approach patients who present with comorbid diagnoses. Though the creation of highly specific treatment protocols had been a critical step in enhancing the scientific integrity of the field, these manuals relevant to individual *DSM* diagnoses have become simultaneously too prolific and too restrictive, and their time is passing.

As the limitations of traditional single-disorder treatment manuals became more apparent there was a simultaneous surge in research on the nature of

Center for Anxiety and Related Disorders, Boston University, Boston, Massachusetts

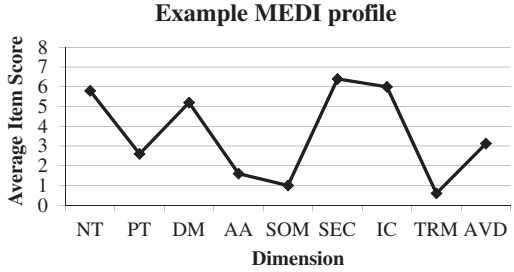
*Correspondence to: Johanna Thompson-Hollands, Center for Anxiety and Related Disorders (CARD), Boston University, 648 Beacon St., Floor 6, Boston, MA 02215.
E-mail: hollands@bu.edu
Received for publication 12 August 2014; Revised 12 August 2014; Accepted 12 August 2014

DOI 10.1002/da.22301
Published online in Wiley Online Library (wileyonlinelibrary.com).

psychopathology, leading to a new (or rather, renewed) understanding of the deeply rooted similarities among certain diagnoses. Studies of comorbidity, treatment response, and even neurobiological functioning now show that emotional disorders (a term that includes anxiety and depressive disorders, as well as several related diagnoses) share fundamental similarities.[1,2] The high rates of comorbidity among these disorders may be explained by similarities in diagnostic criteria or by one disorder increasing the risk for a second, but our belief is that their co-occurrence is more likely the result of a shared temperamental vulnerability, particularly high levels of neuroticism. Similar neurobiological profiles, including hyperexcitability of the limbic system and reduced inhibitory responses in the cortex, have been demonstrated across the emotional disorders, as well as in individuals reporting high levels of neuroticism without demonstrable disorders. These strands of evidence combine with statistical models that examine the latent structure of disorders; work from our research team at CARD has demonstrated that essentially all of the temporal covariance among the emotional disorders is accounted for by higher order temperamental factors such as neuroticism and, to a lesser extent, extraversion, or positive temperament.[2,3]

PERSONALIZED ASSESSMENT

In light of this accumulating body of evidence, there is an increasing sense that diagnostic reliability in this era of ever-finer nosological distinctions has come at the expense of validity. In our view, the research findings suggest that the diagnostic categories encompassing the emotional disorders in *DSM-5* are better described by a background of temperament that accounts for the true variation in onset, overlap, and maintenance, and that clusters of symptoms may be heuristically grouped against that background. We have therefore proposed a new classification strategy rooted in a dimensional framework that may more accurately represent the nature of emotional disorders.[3] The proposed system is organized as a "profile," reflecting two fundamental elements of temperament, neuroticism, and extraversion, drawn from decades of research in personality. These two elements are foundational in explaining the development and course of emotional disorders and may ultimately represent the most important targets for treatment in these disorders. In addition to the temperament markers, the profile contains several lower level constructs that are useful in formulating cases and capture symptoms that are present across multiple diagnostic categories (e.g., panic and other autonomic surges, intrusive cognitions, etc.). These additional markers are then used to help personalize the treatment according to the individual's specific presentation. Profile assessment can be conducted using the newly developed multidimensional emotional disorder inventory (MEDI; Ref. 4). The dimensional classification system has been described in more detail elsewhere[3,5], but an example of a MEDI profile for a patient with diagnoses of social anxiety disorder and persistent depressive disorder, as well as substantial levels of worry that were subsumed within the depressive disorder diagnosis due to *DSM* hierarchy rules, is shown in Fig. 1.



Note. NT = neurotic temperament; PT = positive temperament; DM = depressed mood; AA = autonomic arousal; SOM = somatic anxiety; SEC = social evaluation concerns; IC = intrusive cognitions; TRM = traumatic re-experiencing and dissociation; AVD = avoidance. From Rosellini et al., in press.

Figure 1. Case example using the multidimensional emotional disorder inventory (MEDI) profile. Note. NT, neurotic temperament; PT, positive temperament; DM, depressed mood; AA, autonomic arousal; SOM, somatic anxiety; SEC, social evaluation concerns; IC, intrusive cognitions; TRM, traumatic reexperiencing and dissociation; AVD, avoidance. From Ref. 5.

PERSONALIZED TREATMENT

Dimensional approaches to treatment should be both grounded in the latest understanding of emotion science in order to adequately address the common mechanisms that underlie emotional disorders, but also tailored to address the patient's particular presentation, thereby maximizing the fit and efficiency. Transdiagnostic modular treatments have the potential to provide such a balance. The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Ref. 6), developed by our research group, is a cognitive-behavioral intervention explicitly designed to target the fundamental temperamental processes in emotional disorders in a personalized manner. We now conceptualize the UP as treating neuroticism directly rather than individual disorder constructs. Neuroticism is characterized by frequent, intense-negative emotions, accompanied by strong aversive reactions to emotional experience leading to subsequent efforts to escape or avoid these intense emotional experiences.[1] This avoidance, while effective in the short term, ultimately backfires resulting in rebound effects in which negative emotions return with greater frequency and intensity. The UP consists of treatment modules designed to cultivate a more accepting and willing attitude toward the experience of emotions. The five core modules target increasing present-focused awareness, increasing cognitive flexibility, changing patterns of emotional avoidance and maladaptive emotion-driven behaviors, increasing awareness and tolerance of the physical sensations

produced by emotions, and interoceptive and situational emotion exposures. Additional modules include psychoeducation about the nature and function of emotions, motivation enhancement, and relapse prevention. By changing negative reactions to emotions, the UP reduces avoidant coping strategies and creates opportunities for the extinction of intense negative emotional responses. This extinction ultimately results in changes in temperamental constructs (i.e. reduced neuroticism).[1]

To date the elements or modules of the UP have been tested exclusively in a relatively fixed administration, with all skills introduced to all patients in the same order (e.g., Ref. 7). However, we are currently in the beginning stages of testing the UP in a true modular format.[8] In a modular treatment, each element or skill is separated into a freestanding unit and decision trees guide the choice of modules for a given patient. Assessment is critical at baseline for initial module selection, as well as throughout treatment to assess progress and determine when the module goal has been achieved. Once the patient has successfully demonstrated completion of the module (via a knowledge test, behavior change, or demonstrating a new cognitive skill), the next module is implemented. Depending on the needs of the individual patient, modules will be inserted or removed from the "standard" treatment, or the order of modules may be changed.

Returning to our example of the patient from Fig. 1, we see that he is experiencing high levels of neuroticism and comparatively low levels of positive affect. Looking at the more specific clinical features, we see elevated levels of depression and very high levels of social evaluative concerns and intrusive thoughts. The patient's scores on the dimensions of autonomic arousal, somatic anxiety, and past trauma are all low, and he engages in moderate an amount of emotional and situational avoidance. These profile scores are both consistent with his diagnostic status (e.g., prominent fears of social evaluation are the hallmark of social anxiety disorder) and also provide important information beyond his diagnoses (e.g., elevated scores on the intrusive thoughts dimension represent the patient's prominent worry symptoms, which could not be captured with a diagnosis of generalized anxiety disorder because the symptoms were present exclusively within the context of a mood disorder). Given this clinical presentation, we could select only the particular UP modules that are the most relevant. With the patient's elevated levels of neuroticism and moderate avoidance, the psychoeducation module would provide important baseline knowledge about the function of emotions, and the mindfulness module would provide an ability to observe emotions in context. The patient's high levels of social evaluative concerns and intrusive cognitions indicate that both situational and imaginal exposures would be critical to include. Because surges of autonomic arousal (panic or flashbacks) are less prominent for this patient, fewer sessions might be devoted to the physical component of emotions. In the future additional modules of the UP may be introduced to address other transdiagnosic features across the emotional disorders, such as deficits in positive emotion, sleep difficulties, or family accommodation. The number of sessions devoted to each module is determined by the patient's own progress (evaluated via module-specific measures); even two patients who receive identical MEDI profiles at baseline could have different treatment timelines based upon their individual speed of skill acquisition.

While currently at the level of a proposal, transdiagnostic modular treatments have the potential to enhance both the effectiveness and the efficiency of CBT and lead to truly personalized psychological treatments of emotional disorders. Our ever-deepening understanding of the fundamental maintaining factors that drive psychopathology may now allow us to target temperament in our interventions rather than focusing on relatively superficial differences in presentation. At the same time, personalized modular approaches allow for the application of these interventions in a responsive, flexible, individually tailored fashion.

REFERENCES

1. Barlow DH, Sauer-Zavala S, Carl JR, Bullis JR, Ellard KK. The nature, diagnosis, and treatment of neuroticism back to the future. Clin Psychol Sci 2014;222(3):344–365. doi:10.1177/2167702613505532
2. Brown TA. Temporal course and structural relationships among dimensions of temperament and DSM-IV anxiety and mood disorder constructs. Jf Abnorm Psychol 2007;116:313–328.
3. Brown TA, Barlow DH. A proposal for a dimensional classification system based on the shared features of the DSM-IV anxiety and mood disorders: implications for assessment and treatment. Psychol Assess 2009;21:256–271.
4. Rosellini AJ. Initial development and validation of a dimensional classification system for the emotional disorders. In Unpublished Doctoral Dissertation. Boston, MA: Boston University; 2013.
5. Rosellini AJ, Boettcher H, Brown TA, Barlow DH. A transdiagnostic temperament-phenotype profile approach to emotional disorder classification: an update. Psychopathol Rev (in press).
6. Barlow DH, Farchione TJ, Fairholme CP, et al. The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders: Therapist Guide. New York, NY: Oxford University Press; 2011.
7. Farchione TJ, Fairholme CP, Ellard KK, et al. Unified protocol for transdiagnostic treatment of emotional disorders: a randomized controlled trial. Behav Therapy 2012:43(3):666–678. doi:10.1016/j.beth.2012.01.001
8. Chorpita BF, Daleiden EL, Weisz JR. Modularity in the design and application of therapeutic interventions. Appl Prev Psychol 2005;11(3):141–156. doi:10.1016/j.appsy.2005.05.002
9. Barlow DH. Clinical Handbook of Psychological Disorders: A Step-by-Step Treatment Manual. 5th ed. New York, NY: The Guilford Press; 2014.