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Integrating and differentiating personality and psychopathology in cognitive behavioral therapy

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Abstract

A large body of literature supports the strong association between personality features and psychopathology. This research has, however, had little influence on day-to-day therapeutic practice, particularly in cognitive behavioral approaches that have traditionally focused on addressing the symptoms of categorically defined diagnoses. Indeed, there are few CBT protocols aimed at altering the personality features. Recently, however, the CBT literature has displayed an increased focus on identifying alternative higher-order, dimensional mechanisms that may underscore the development and maintenance of broad classes of psychopathology (e.g., aversive reactivity to emotions, reward sensitivity, and performance expectancies). There is ample evidence linking these processes to *DSM* disorder severity; however, they may *also* represent a functional link between the personality domains and the disorder symptoms organized beneath them. The functional mechanisms through which an individual's personality confers risk for psychopathology may be naturally amenable to cognitive behavioral elements, and targeting these processes in treatment has the potential to address both disorder symptoms and underlying personality vulnerabilities. Thus, the identification of intermediate functional mechanisms may help bridge the gap between personality science and clinical practice.

KEYWORDS

cognitive behavioral therapy, intervention, mechanisms, personality, therapy

1 | INTRODUCTION

A large body of literature supports the strong association between personality features and psychopathology (e.g., Clark & Watson, 1991; Kotov et al., 2010; Krueger & Markon, 2006). This research has, however, had relatively little influence on day-to-day therapeutic practice, particularly in cognitive behavioral therapy (CBT) traditions that have focused primarily on addressing the symptoms of psychiatric disorders (McHugh et al., 2009). This lack of integration is unfortunate, as there are numerous advantages for CBT therapists to incorporate higher-order dimensional elements (e.g., personality) into their understanding and treatment of psychopathology (Andrews, 1990, 1996; Blashfield et al., 2014). The prevailing categorical approach in which patients are assigned diagnoses and treated with the associated CBT protocol(s) creates an enormous training burden for clinicians who must learn numerous discrete interventions in order to provide empirically supported care (McHugh et al., 2009). Moreover, patients do not fit neatly within our nosological categories (i.e., subthreshold symptoms and diagnostic comorbidity; e.g., Brown et al., 2001), suggesting that our diagnosis-specific approach to treatment does not align with real-world clinical presentations. Thus, using CBT, or components thereof, to target a limited number of personality-informed dimensions (e.g., Neuroticism and Extraversion) has the potential to significantly streamline care.

Despite the promise of a hierarchical system in which psychopathology is organized beneath shared dimensions of personality (e.g., Alternative Model of Personality Disorders for DSM-5 [AMPD; American Psychiatric Association, 2013] and Hierarchical Taxonomy of Psychopathology [HiTOP; Kotov et al., 2017]), CBT clinicians and researchers may be hesitant to adopt such an approach because they simply do not know what it means to treat, for example, "internalizing" or "disinhibition." Indeed, there are few CBT protocols aimed at altering personality features, though studies with nonclinical samples have demonstrated that setting and following through on behavior change goals is associated with personality change (e.g., Hudson et al., 2019; Hudson & Fraley, 2015). Recently, however, likely due to shifts in funding priorities (Insel et al., 2010), there has been an increased focus on identifying mechanisms implicated across larger classes of *DSM* disorders (e.g., experiential avoidance and reward sensitivity), along with the development of transdiagnostic interventions to address these processes (Hofmann & Hayes, 2019; Sauer-Zavala et al., 2017). Although these mechanisms do not represent personality per se, they may reflect a functional bridge through which an individual's temperamental profile can confer risk for the behaviors and symptoms that comprise *Diagnostic and Statistical Manual (DSM)* disorder categories. In other words, intermediate transdiagnostic mechanisms that are more proximally related to clinical phenotypes may provide useful information regarding putative intervention targets and, in fact, may be naturally amenable to CBT strategies. Indeed, by targeting these processes in treatment, it may be possible to observe simultaneous change in both disorder symptoms and risk-conferring higher-order dimensions of personality. The identification of functional mechanisms is consistent with other models that aim to provide a framework for organizing the structural models of personality and dynamic processes such that clinical assessment data can be used to suggest specific interventions (e.g., Harkness & Lilienfeld, 1997; Hopwood et al., 2019; Krueger, 2013).

In the present manuscript, we will describe the advantages of integrating personality dimensions into the way that CBT therapists and researchers conceptualize the symptoms of common mental disorders and summarize the empirical literature supporting structural relationships among these constructs. Specifically, we will describe a functional model in which personality and psychopathology are relatively distinct constructs that are linked through intermediary mechanisms. Given that anxiety, depressive, and related disorders (e.g., emotional disorders; Bullis et al., 2019) represent the "bread and butter" of the CBT approach, we will use relationships between Neuroticism (i.e., negative affectivity, negative emotionality, and internalizing) and emotional disorders to illustrate our perspective. In particular, we will identify the functional mechanisms that link these constructs and highlight the existing CBT strategies that may address them. We will then apply this functional approach to understanding connections between higher-order domains of personality and psychopathology more broadly to include relationships between additional dimensions (e.g., Extraversion and Conscientiousness) and the disorders organized beneath them. Finally, we will demonstrate how our proposed functional mechanisms can easily be integrated into existing structural models of personality/psychopathology.

2 | NEUROTICISM AND ITS DISORDERS

Neuroticism refers to the propensity to experience negative emotions in response to both external and internal triggers (Barlow, Ellard, et al., 2014). Anxiety, fear, guilt, anger, and sadness are the discrete states most often referenced with regard to this trait. Additionally, Neuroticism is also characterized by the perception that the world is a dangerous and threatening place, along with the belief that challenging stressors cannot be managed (Barlow, 2002; Barlow, Sauer-Zavala, et al., 2014; Clark & Watson, 2008; Eysenck, 1947).

2.1 | Neuroticism and classification

In early versions of the *DSM* (American Psychiatric Association [APA], 1952, 1968), Neuroticism itself was not discussed; however, the broad diagnostic category of neuroses described conditions that reflected the propensity to experience negative emotions. Dictated by the zeitgeist in the field of psychiatry, the term "neuroses" gradually fell out of favor due to its association with a psychodynamic etiology. Indeed, this diagnostic label was removed from *DSM-III* (APA, 1980), replaced by objective symptom criteria without references to etiological underpinnings. For many, *DSM-III* represented an enormous advance over previous methods and sparked meaningful treatment outcome research (e.g., Mayes & Horwitz, 2005). For the first time, researchers could track diagnostic status in a reliable manner over time and in response to treatment. In tandem, psychotherapeutic (and pharmacological) treatments were increasingly tailored to address each specific form of psychopathology articulated in the *DSM,* resulting in numerous CBT interventions with demonstrated efficacy in a variety of formats, uses, and settings (Barlow, 1996, 2004; Barlow et al., 2000; Heimberg et al., 1998).

The categorical approach to grouping mental health disorders, exemplified by *DSM-III* (APA, 1980) and its successors, is not without shortcomings, prompting some to advocate for a return to a more dimensional understanding of psychopathology (e.g., Blashfield et al., 2014). For example, many

diagnoses share similar criteria and often co-occur, raising suspicion that enhanced diagnostic reliability may have come at the expense of validity; in other words, as a field, we may be overemphasizing categories that are, in fact, minor variations of broader underlying syndromes (Andrews, 1990, 1996; Blashfield et al., 2014; Lilienfeld, 2014). Additionally, treatment development and testing has largely corresponded to the discrete disorders included in the *DSM* system, leading to a proliferation of manuals. Given the high degree of diagnostic comorbidity among anxiety and depressive disorders (e.g., Brown et al., 2001; Kessler et al., 1998), it is troubling that protocols geared toward single diagnoses provide little guidance on how to address commonly co-occurring conditions. Moreover, the existence of numerous treatment protocols, each targeting a single disorder, substantially increases therapist burden; to provide care consistent with many empirically supported approaches, therapists may need to complete costly training for multiple interventions (McHugh et al., 2009).

Given the limitations of a categorical approach to classification and treatment, the tide has turned again, with researchers and clinicians criticizing the validity of the *DSM* categories and advocating for a more dimensional system that includes temperamental elements. Rather than focusing on differences between disorders, as is done when emphasizing discrete categories, dimensional, hierarchical approaches emphasize shared vulnerabilities that can become a more streamlined focus of care.

2.2 | Neuroticism and emotional disorders

With regard to higher-order dimensions that confer risk for emotional disorders, Andrews (1990, 1996) has argued that a "general neurotic syndrome" is a more parsimonious way to understand the difficulties experienced by patients with anxiety, depressive, and related disorders (i.e., obsessive-compulsive, trauma-, and stressor-related). Indeed, individuals with these common mental conditions experience high levels of negative affect (e.g., Brown & Barlow, 2009) that occurs more frequently and intensely compared to healthy individuals (Campbell-Sills et al., 2006; Mennin et al., 2005). There is evidence that this propensity to experience negative emotions is an inherited biological predisposition (Bouchard & Loehlin, 2001; Clark et al., 1994; Kendler et al., 2003) that is, further sensitized by environmental stressors (Barlow, Ellard, et al., 2014; Gunnar & Quevedo, 2007; Lanius et al., 2010; Rosen & Schulkin, 1998; Shackman et al., 2016). Additionally, in prospective studies, negative affectivity is strongly linked to the onset and maintenance of emotional disorders (Brown et al., 1998; Gershuny & Sher, 1998). However, it is important to note that the tendency to experience negative affect is not isomorphic with the emotionally avoidant behaviors that constitute symptoms of anxiety, depressive, and related disorders (Brown, 2007; Brown et al., 1998; Fournier et al., 2019). Instead, Neuroticism is a higher-order risk factor accounting for the covariance among *DSM* emotional disorder constructs (Brown, 2007; Brown & Barlow, 2002, 2009; Brown et al., 1998; Chorpita et al., 1998; Gershuny & Sher, 1998; Griffith et al., 2010; Kasch et al., 2002; Kessler et al., 2011; Krueger, 1999; Watson et al., 1988).

2.3 | Aversive reactivity: A Functional bridge between Neuroticism and emotional disorders

However, beyond Neuroticism itself, the way in which individuals respond to negative affect is also important for the development of subsequent emotional disorders, as well as for the maintenance of this trait. In the CBT literature, a number of transdiagnostic constructs that each reflect the tendency to find emotional experiences aversive have been articulated, including anxiety sensitivity, experiential avoidance, distress intolerance, negative urgency, and intolerance of uncertainty. These negative views about emotions may be cultivated through early learning experiences in which close others models fearful/punishing reactions to emotional expressions (e.g., Chorpita et al., 1998; Linehan, 1993). There is ample evidence linking these processes to *DSM* disorder onset and severity (e.g., Boelen et al., 2010; Boswell et al., 2013; Lee et al., 2010), as well as to the amplification of discrete emotional experiences (e.g., Erisman & Roemer, 2012; Ford et al., 2018; Keng et al., 2017; Ostafin et al., 2014; Troy et al., 2018). Measures of constructs reflecting aversive reactivity to emotions are routinely included in treatment outcome studies for CBT interventions. For example, following a course of CBT, reductions in aversive reactivity to emotions significantly predicted symptom improvements even after controlling for frequency of negative emotional experiences (e.g., Forman et al., 2007; Hayes et al., 2010; Sauer-Zavala et al., 2012).

Aversive reactivity to emotions, a transdiagnostic dimensional risk factor for emotional disorders that is routinely studied in the context of CBT, may*also* provide a functional link between personality, specifically internalizing/Neuroticism (i.e., the tendency to experience negative emotions), and the symptoms associated with *DSM* diagnostic categories (e.g., GAD, OCD). In our model (i.e., Barlow, Sauer-Zavala et al., 2014; Bullis et al., 2019), individuals with a biological propensity for negative affect (personality vulnerability [i.e., temperament]) and who find these emotional experiences aversive (intermediate mechanism), engage in behavioral strategies to escape or avoid, such as leaving a feared situation or engaging in non-suicidal self-injury (*DSM* disorder symptoms).[1] Thus,

in our conception of disorders that fall within the traditional neurotic spectrum, personality vulnerabilities and psychopathology are distinct yet *functionally* related. Focusing on the mechanisms that connect them (e.g., aversive reactivity to emotions) may shed light on treatment targets that are naturally amenable to CBT, increasing the acceptability of personality-based classification systems.

2.4 | Addressing Neuroticism with CBT approaches

By targeting the functional mechanisms through which an individual's personality may confer risk for psychopathology, CBT elements may simultaneously address both disorder symptoms and underlying personality vulnerabilities. Specifically, interventions that target aversive reactions to a wide variety of negative emotions may reduce reliance on the avoidant emotion regulation strategies that, paradoxically, have been shown to lead to more frequent and intense emotional experiences (Rassin et al., 2000; Wegner et al., 1987). Indeed, when negative emotions become less frequent over time, and when these changes are sustained, Neuroticism itself may decrease (for a description of what constitutes trait change, see: Magidson et al., 2014).

A number of CBT elements have been shown to target various forms of aversive reactivity. For example, mindfulness training, which cultivates a nonjudgmental, present-focused stance toward internal and external stimuli (Kabat-Zinn, 1982), has been shown to reduce experiential avoidance, anxiety sensitivity, and intolerance of uncertainty (Alimehdi et al., 2016; Brown et al., 2015; Kim et al., 2010; McCracken & Keogh, 2009; Shapiro, 2009). Similarly, cognitive interventions (i.e., evaluating the content of one's thoughts and generating more realistic interpretations; Beck, 1963) may address beliefs about one's ability to cope with challenging situations, increasing perceived self-efficacy to manage negative emotional experiences, and reducing aversive reactivity; indeed, cognitive therapy has been associated with significant reductions in constructs reflecting the tendency to view emotional experiences negatively (Azizi et al., 2010; Smits et al., 2008). Finally, behavior change elements (e.g., opposite action and exposure) that encourage patients to engage in approach-oriented actions toward emotional experiences have also been shown to reduce aversive reactivity (Brake et al., 2016; Hedman et al., 2014; Rizvi & Linehan, 2005; Sauer-Zavala et al., 2019).

Although the CBT elements described above have theoretical relevance for Neuroticism, they were originally conceived to target symptoms of *DSM* disorders and, in many cases, have not been tested with regard to their efficacy in addressing Neuroticism specifically. However, several groups have recently incorporated these strategies into interventions designed to directly address Neuroticism. For example, the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP; Barlow et al., 2018) is an intervention that targets the aversive reactivity to emotional experiences that maintains both Neuroticism and its associated *DSM* conditions. There is considerable empirical support for the UP; indeed, in a recent meta-analysis of 15 studies with 1,244 participants, large effect size reductions were found across symptoms of depression, generalized anxiety disorder, obsessive-compulsive disorder, panic disorder with/without agoraphobia, social anxiety disorder, and borderline personality disorder (Sakiris & Berle, 2019). Moreover, improvements in these symptoms can be accounted for by reduced aversive reactivity to emotional experiences (Eustis et al., 2020; Sauer-Zavala et al., 2012).

Of course, given the premise of the UP as a treatment for Neuroticism itself, it is also important to consider the effects of this intervention on this trait. Recently, Sauer-Zavala et al. (2020) examined whether the UP led to greater reductions in Neuroticism relative to gold-standard, symptom-focused CBT protocols (i.e., SFPs) and a waitlist control condition. Results suggest that patients in the UP condition demonstrated greater reductions in Neuroticism than did those in the SFP and waitlist conditions. Fluctuations in depression and anxiety did not appear to account for these changes, despite significant symptom improvement observed across both active treatment conditions. Of note, the greatest divergence among UP and SFP patients with regard to the average trajectory of change in Neuroticism occurred during the final four sessions of this study. At this point in treatment, all patients (regardless of condition) were engaging in exposures. The goal of exposure in the SFPs, however, is to extinguish distress in response to specific emotion-eliciting situations (e.g., public speaking and contamination), whereas in the UP, the focus is on facilitating new learning about emotions themselves (e.g., emotions are temporary and tolerable) regardless of the situation. Explicit focus on facilitating new learning during emotional exposures may be most likely to reduce aversive reactivity, though future research is necessary to confirm this hypothesis.

2.4.1 | Summary

The identification of intermediate dimensional processes (i.e., aversive reactivity) that are functionally related to both personality dimensions and the signs/symptoms that constitute traditional *DSM* diagnoses has the potential to make hierarchical, dimensional models of personality accessible to CBT therapists. By targeting aversive reactivity to emotions using common CBT elements, improvements in acute

disorder symptoms *and* personality-based vulnerabilities (i.e., Neuroticism) are observed.

3 | BEYOND NEUROTICISM: FUNCTIONAL CONNECTIONS BETWEEN PERSONALITY AND PSYCHOPATHOLOGY

Although Neuroticism has received the most attention, and may be most readily addressed with existing CBT elements, relationships between additional dimensions of personality and psychopathology have also been articulated. Although more research is needed to understand the functional mechanisms that account for how each broad domain of personality confers risk for related disorders, emerging work has identified processes that are amenable to existing CBT strategies. For example, CBT has been used to alter levels of positive affectivity/Extraversion for individuals with deficits (e.g., depression) and excesses (e.g., mania) in this trait. Additionally, a theoretical account of altering Conscientiousness has recently been proposed (Roberts et al., 2017). In the section that follows, we will summarize the literature on relationships between broad dimensions of personality and *DSM* disorders; whenever possible, we will highlight functional mechanisms that may account for these relationships and suggest CBT elements to address them.

3.1 | Extraversion/detachment

Extraversion is defined as the tendency to be talkative, warm, assertive, active, excitement-seeking, and to generally experience positive affect (Costa & McCrae, 1992). Disturbances in Extraversion (i.e., low and high levels of this trait) are associated with various forms of psychopathology (see: Seligman et al., 2005). Specifically, researchers using structural models have revealed specific core deficits in positive affectivity in individuals with depressive disorders, social anxiety (Brown, 2007; Brown et al., 1998), and agoraphobia (Rosellini et al., 2010). Excessively high levels of positive affectivity have also been well-documented as a risk factor for mania in bipolar disorder (Gruber et al., 2008).

Several related theories (e.g., Depue & Iacono, 1989; Gray, 1987) have conceptualized positive emotions as important for approach-oriented, goal-driven behavior, likely due to the fact that the experience of positive emotions following successful pursuit of goals is reinforcing (e.g., Berridge & Robinson, 1998). In a recent review, Carl and colleagues (2013) provide a theoretical account, based on Gross' (2015) process model of emotion regulation, for how deficits in positive emotionality can evolve into *DSM* disorder symptoms. Individuals with a temperamental vulnerability to experience fewer positive emotions may systematically engage with fewer positive-emotion eliciting situations or activities, resulting in less incentive (in the form of reinforcing positive emotions) to approach such situations in the future; over time, this may lead to fewer attentional resources being allocated to positive stimuli (including emotions) and the belief that these experiences do not matter. In contrast, those with excessively high levels of trait Extraversion (e.g., individuals at risk for bipolar disorder), may overemphasize the importance of positive-emotion eliciting activities, and seek them out to their detriment. At both extremes, patterns of reinforcement (or lack thereof) lead to a kindling effect in which temperamental vulnerabilities grow into disorder symptoms. Neurobiological work supports the view that deficits/excesses in Extraversion are mediated by dysfunctional reward sensitivity (Craske et al., 2019; Der-Avakian & Markou, 2012; Pizzagalli, 2014; Treadway & Zald, 2011).

Recently, some work has been conducted in an effort to identify behavioral strategies specifically aimed at increasing positive affect (Extraversion) by augmenting responsivity to rewards. As noted above, one factor maintaining the low levels of Extraversion is difficultly selecting and modifying situations/activities that promote positive emotions (Carl et al., 2013). Indeed, interventions that encourage the selection of specific rewarding activities are associated with short-term increases in positive affect (Hopko et al., 2003; Lyubomirsky et al., 2005; Mata et al., 2012; Seligman et al., 2005; Syzdek et al., 2010). Another approach to augmenting Extraversion may be via attentional shifts that allow patients to focus on positive emotions that are already present; indeed, mindfulness training (Erisman & Roemer, 2012; Jimenez et al., 2010) and savoring interventions have been shown to augment positive affectivity (Bryant & Veroff, 2007). Cognitive therapy interventions have also been employed. For example, well-being therapy (Fava & Ruini, 2003) addresses cognitive dampening by encouraging patients to identify sources of their well-being and any negative cognitions ("interrupting thoughts") that interfere with its attainment. More recently, comprehensive treatment packages using the above elements have demonstrated large effects on positive affectivity (Carl et al., 2018; Craske et al., 2019).

The ability to downregulate positive emotions may also be important for some individuals, including those at risk for bipolar spectrum disorders or excessive reward-seeking behaviors (e.g., substance use) (Gruber et al., 2008). Interventions that include strategies to encourage the selection of situations that reduce excessive engagement with positive emotions have been used for patients with bipolar disorder. For example, Interpersonal and Social Rhythm Therapy (Frank et al., 2005) includes monitoring of mood, along with activities that change mood (e.g., sleep and social interactions), and with the goal of stabilizing affect. Similarly, GOALS

(Johnson & Fulford, 2009), a recently developed treatment to prevent mania, aims to decrease bipolar patients' ambitious goal-setting and reduce the pace at which they pursue these goals.

3.2 | Conscientiousness/disinhibition

Conscientiousness refers to the tendency to be self-controlled, responsible, hard-working, orderly, and rule-abiding (Roberts et al., 2014). This trait has been consistently associated with work and school performance, relationship quality, and physical and emotional health (e.g., Dudley et al., 2006; Hampson et al., 2013; Hill et al., 2014; Kotov et al., 2010; Poropat, 2009). In the context of psychopathology, low Conscientiousness is a risk factor for externalizing conditions like substance use disorders and antisocial behavior (Robert F. Krueger et al., 2007).

Roberts and colleagues have published several theoretical accounts on the development and malleability of Conscientiousness, along with proposed mechanisms by which interventions may alter this trait (Magidson et al., 2014; Roberts et al., 2017). With regard to development, they note that children vary widely on temperamental precursors to Conscientiousness, such as effortful control (Deal et al., 2005), and that these differences are likely due to genetic contributions (Krueger & Johnson, 2008). Moreover, they suggest that certain environments are more likely to provide positive reinforcement for orderly, rule-abiding behavior (e.g., praise for completing homework on time), increasing the likelihood these actions will continue over time (Hill, & Roberts, 2011). With regard to a functional mechanism that may account for the maintenance of current levels of this trait (akin to aversive reactivity for Neuroticism and reward sensitivity for Extraversion), they suggest that individuals' expectancies about their performance on certain tasks, along with how much they value these actions, predicts Conscientious behaviors (e.g., paying bills on time, double-checking one's work, remembering materials needed at work or school, subjugating impulses that would be gratifying in the short-term; Eccles, 2009). They go on to speculate that, to increase positive expectancies about Conscientious behaviors and the behaviors themselves, environmental contingencies that reinforce these beliefs/behaviors must be altered (Roberts et al., 2006).

Although no behavioral interventions have been developed to directly target Conscientiousness, Roberts and colleagues suggest that an intervention with a detailed structure that focuses on values and goal-setting and also provides immediate feedback on progress, clear accountability, and an opportunity for remediation would be potentially useful for this trait (Magidson et al., 2014). In particular, they suggest that behavioral activation (BA), an evidence-based approach for addressing depressive symptoms (Jacobson et al., 2001), may be a useful treatment to engage these targets. The goal of BA is to increase engagement in goal-directed activities that are considered important, enjoyable, and in accordance with individual values across life domains. These authors contend that many components of BA, including monitoring daily activities, setting goals, and optimizing daily schedule, are, in and of themselves, consistent with trait Conscientiousness. Using BA to change Conscientiousness is, at this point, a promising theoretical proposition, since empirical data on its utility in this context has not yet been collected.

3.3 | Agreeableness/antagonism

Agreeableness refers to the tendency to be trusting, cooperative, kind, straightforward, and sympathetic (Bucher et al., 2019). Low levels of this trait, often referred to as antagonism (e.g., Samuel & Gore, 2012), are characterized by vindictiveness, aggression, or narcissism (Williams & Simms, 2018), and confer risk for externalizing disorders including conduct disorder, antisocial personality disorder, and substance use disorders, as well as strained interpersonal relationships (Anderson et al., 2007; Kotov et al., 2010; Miller et al., 2003). Moreover, individuals exhibiting maladaptive elevations in Agreeableness may be characterized by submissiveness, dependence, or over-nurturance, and are at risk for dependent personality disorder (Samuel & Widiger, 2004; Williams & Simms, 2018).

Theorists have suggested that Agreeableness is functionally related to attachment styles that result from relationships with parents or other caregivers (Carver, 1997; Young et al., 2006). Specifically, low levels of Agreeableness are thought to develop from insecure attachment styles (i.e., ambivalent and avoidant) (Bowlby, 1973; Crittenden & Ainsworth, 1989) that, in adults, manifest as feeling vulnerable in relationships and lead to the seemingly protective behaviors that characterize externalizing psychopathology (e.g., acting cruel, selfish, and seeking excessive admiration from others) (Young et al., 2006). Thus, as aversive reactivity serves as an intermediate mechanism between Neuroticism and internalizing (i.e., emotional) disorders, attachment insecurity represents an actionable functional mechanism linking Agreeableness to antagonistic externalizing psychopathology.

Although attachment insecurity is not typically considered a CBT target, some CBT elements may be useful for engaging this intermediate mechanism. For example, schema focused therapy (SFT; Young et al., 2006) uses cognitive therapy strategies to challenge dysfunctional schemas (i.e., pervasive patterns of thinking and feeling) about relationships that are thought to drive the behaviors characteristic of maladaptively low Agreeableness. Additionally, assertiveness training, incorporated into the interpersonal effectiveness module of

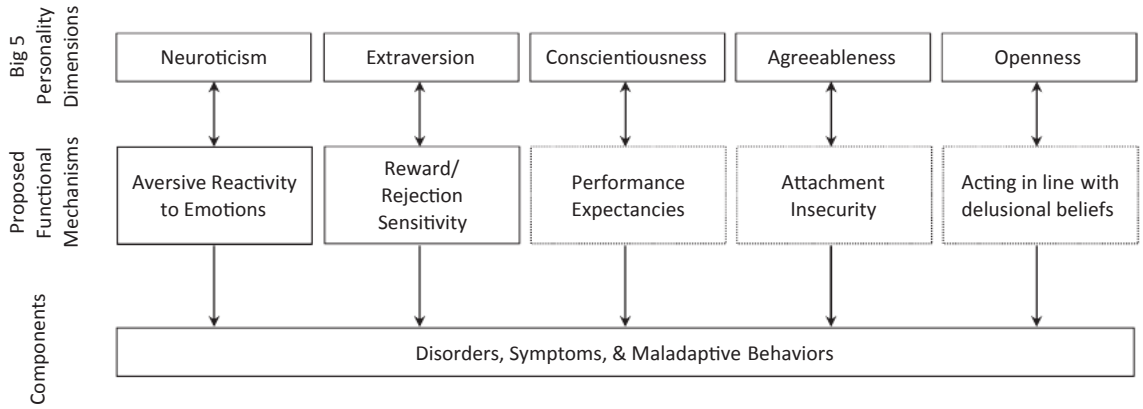

FIGURE 1 Intermediate functional mechanisms that connect broad domains of personality to psychopathology.

dialectical behavior therapy (DBT; Linehan, 2015), may be useful for practicing nonverbal expressions of confidence and verbal expressions of one's needs (for those with maladaptively high Agreeableness) or nonverbal expressions of conciliation and verbal expressions of politeness (for those with maladaptively low Agreeableness). Finally, others have suggested that treatment for individuals with maladaptively low levels of Agreeableness should begin with motivational techniques aimed at illustrating the costs of using antagonistic strategies in interpersonal contexts (Livesley, 2003; Widiger et al., 2012). Specifically, highlighting how the components of Agreeableness, like modesty and altruism, may actually result in more consistent achievement of one's goals (e.g., employment) could prove fruitful. Unfortunately, although studies evaluating these interventions have provided evidence of their efficacy for DSM disorders, researchers have not routinely included the measures of attachment insecurity or Agreeableness/antagonism.

3.4 | Openness to Experience/ thought disorder

Openness to Experience is defined as the tendency to have an active imagination; a willingness to consider a range of esthetics, ideas, and values; and intellectual curiosity. People exhibiting maladaptive elevations in Openness may be at risk for a thought disorder, such as psychosis, given the potential for hallucinations and delusions (Boyette et al., 2013), although Openness to Experience does not uniquely characterize these disorders. Those with maladaptively low Openness may exhibit alexithymia or rigid conventional thinking and behaving (Mullins-Sweatt et al., 2020). Unlike the other four traits included in the FFM, research on functional mechanisms related to the development and maintenance of this trait is limited. Similarly, research on directly addressing this trait in treatment is quite sparse, though some authors have suggested using established treatments for disorders associated with high Openness as a starting point for identifying intervention targets/strategies suited to this domain (Bach & Presnall-Shvorin, 2020).

Relatively few researchers have studied the effects of CBT on Openness. To the degree that maladaptively elevated Openness reflects the positive symptoms (e.g., hallucinations and delusions) characteristic of thought disorders, CBT for psychosis (CBTp; Morrison et al., 2004) may offer relevant, functional targets for intervention. In CBTp, delusions and hallucinations are thought to be reinforced by engaging in behaviors, broadly defined, that align with these perceptions of reality. For instance, a person who endorses a delusion that the CIA is targeting them may (a) interpret others' ambiguous actions in line with this delusion, (b) engage in behaviors designed to protect oneself from being detected by the CIA, or (c) ruminate on this delusion, amplifying the distress associated with it. Thus, to reduce maladaptive Openness to these beliefs, CBTp therapists engage patients in cognitive reality testing, behavioral experiments, and explorations of patients' beliefs about the source of their delusions or hallucinations. Of course, thought disorders typically encompass a range of interfering symptoms beyond delusions and hallucinations (for a review of treatment approaches to these symptoms, see Breitborde et al., 2017). However, these symptoms may be more characteristic of other personality dimensions (e.g., negative symptoms with low Extraversion) than maladaptive Openness per se.

4 | INCORPORATING FUNCTIONAL MECHANISMS INTO EXISTING HIERARCHICAL MODELS OF PSYCHOPATHOLOGY

The incorporation of functional elements into a system of mental health classification is not inconsistent with existing dimensional proposals (e.g., AMPD and HiTOP). Figure 1 represents one example of how intermediate mechanisms can be incorporated into extant structural models of personality. Of note, we have elected to use the Five-Factor

Model in this example, as the labels for its broad domains (e.g., Neuroticism and Extraversion) are the most widely used and are often considered isomorphic with the higher-order dimensions reflected in other models. Additionally, these domains are dimensional and allow for a more comprehensive clinical profile (e.g., high Neuroticism, low Extraversion, average Agreeableness, Openness, and Conscientiousness) that better captures idiographic differences than categorical distinctions (e.g., panic disorder, major depressive disorder, and internalizing disorder). In Figure 1, functional mechanisms (e.g., aversive reactivity, reward sensitivity, and performance expectations) serve as a bridge between higher-order personality dimensions and the development and maintenance of a range of clinical syndromes. We acknowledge that some of these processes have received considerably more empirical attention than others. Thus, solid lines surrounding our functional mechanisms indicate a robust literature supporting relationships between the construct and both personality and clinical symptoms, whereas hashed lined imply these mechanisms are largely theoretical in nature. Incorporating functional mechanisms into hierarchical models of psychopathology adds a dynamic element that goes beyond communicating descriptive, structural relationships by characterizing *how* personality vulnerabilities evolve into or maintain psychopathological dysfunction.

Additionally, functional mechanisms offer more explicit targets of change than personality dimensions alone. For instance, although a CBT therapist may not know what treatment procedures apply to Neuroticism/internalizing or Extraversion/detachment, strategies for aversive reactivity or reward sensitivity may be more readily accessible. In this model, these functional mechanisms are also dimensional and could each be assessed for a given patient, creating personalized treatment targets. Enhancing the existing hierarchical models of psychopathology with functional mechanisms that link personality to symptoms may increase both the developmental and clinical utility of this model for CBT researchers and clinicians alike.

To illustrate how a functional understanding of the relationship between symptoms and higher-order dimensions can paint a more comprehensive picture of an individual's difficulties, it can be useful to examine conditions that can result from more than one mechanistic risk factor. For example, borderline personality disorder (BPD) has long been considered both an internalizing and externalizing disorder (Eaton et al., 2011) and, within the Alternative Model of Personality Disorders in DSM-5 (American Psychiatric Association, 2013), BPD is described as being composed of negative affectivity, disinhibition, and antagonism. In our model, specific symptoms may be understood as resulting from one or more of these risk dimensions. If an individual patient's interpersonal difficulties, for example, are the result of internalizing psychopathology (i.e., mediated by strong emotions and attempts to dampen them), the treatment approach would be different than if this symptom resulted from high levels of antagonism (perhaps conferred through attachment difficulties from early life experiences). Of course, because dimensional profiles for each patient could be created, our model allows clinicians to craft personalized treatment plans that target actionable intermediary mechanisms.

5 | CONCLUSIONS

There are many advantages to shifting the focus of treatment to personality-based dimensions, rather than disorder-specific symptoms. First, given the high rates of comorbidity among categorical disorders (e.g., Grant et al., 2008; Kessler et al., 1998), interventions focused on shared, and higher-order dimensions (e.g., personality trait vulnerabilities) represent a more parsimonious approach to treatment. Additionally, a trait-based system may allow for greater specificity in communicating the deficits that drive symptoms (Brown & Barlow, 2009; Hopwood et al., 2012). Indeed, dimensional models provide the ability to determine whether clinically relevant elevations exist on a range of features (e.g., hostility and mistrust) that may then become idiographic treatment targets, rather than relying on a categorical diagnosis and applying a one-size-fits-all treatment.

Despite these advantages, personality-based conceptions of psychopathology/treatment are not currently well integrated in CBT-related research and clinical practice. We have identified several potential barriers. First, the majority of the treatment recommendations based on personality features, in which existing interventions (e.g., interpersonal effectiveness in DBT) are matched to particular traits (e.g., antagonism), lack empirical support; more research is needed to determine whether the suggested treatment components indeed engage these personality domains. Second, most of these theoretical accounts have been applied only to personality disorders (i.e., Hopwood, 2018; Mullins-Sweatt et al., 2020), with limited relevance for more prevalent conditions that are also clearly mediated by higher-order temperamental domains (e.g., emotional disorders). Finally, within this literature, including more comprehensive accounts that apply to a broader range of psychopathology (i.e., Bach & Presnall-Shvorin, 2020), treatment recommendations are often made at the facet level; in other words, given that each of the five broad domains of personality are composed of six facets (e.g., Neuroticism is composed of anxiety, depression, anger, self-consciousness, impulsiveness, and vulnerability), this approach would yield 30 distinct treatment approaches. Although this number of interventions is far fewer than the number of protocols required to address each *DSM*

diagnosis, it may still result in significant therapist burden (i.e., time and costs associated with learning a large number of treatments). Additionally, it is not clear that the facets organized beneath a broad personality domain are functionally distinct, warranting discrete treatment approaches. Finally, CBT therapists may be reluctant to understand and treat psychopathology from a personality-based lens given that they may view these traits as inflexible and not know how to engage them in treatment.

In light of these barriers, we contend that treatments focused on the broad spectra level of personality have the potential to lead to a more manageable number of evidence-based treatment components that can reduce therapist training burden and provide coverage for the full range of *DSM* disorders. We also acknowledge that, for many researchers and clinicians, the notion of altering broad dimensions of personality may seem abstract, particularly since personality was long thought to be inflexible (cf. Roberts et al., 2017). We argue that the functional mechanisms that may bridge personality domains and the associated clinical phenomena represent more actionable targets of treatment (e.g., Hofmann & Hayes, 2019). Indeed, most of the mechanisms depicted in Figure 1 (i.e., aversive reactivity, reward sensitivity, and performance expectancies) are readily addressable with existing CBT elements. Moreover, as conveyed in Figure 1, these functional mechanisms are easily integrated within existing dimensional models of psychopathology (i.e., HiTOP and AMPD).

5.1 | Concluding remarks

Thus, in our conception, personality and psychopathology are distinct yet functionally related. For example, the tendency to experience negative affect is not isomorphic with the emotionally avoidant behaviors that constitute symptoms of anxiety, depressive, and related disorders (Brown, 2007; Brown et al., 1998; Fournier et al., 2019). Similarly, deficits in positive affectivity are not the same as meeting criteria for major depressive disorder. Focusing on the mechanisms that connect these personality and psychopathology constructs (e.g., aversive reactivity to emotions and reward sensitivity) may shed light on treatment targets that are naturally amenable to CBT, increasing the acceptability and utility of personality-based classification systems within this therapeutic tradition.

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ENDNOTE

[1] It is important to note that "personality" can be defined as characteristic ways of feeling, thinking, and behaving (Eysenck, 1947), which encompasses the three components of our functional model of emotional disorders. However, from a developmental perspective, there is compelling prospective evidence that affect, perceptions, and behaviors can be separated temporally (for a review of these transactions, see Barlow, Ellard, et al., 2014). Moreover, we contend that there is heuristic value in understanding functional relationships between the components (even if they can be subsumed within a broader framework of personality) as this information provides actionable targets for treatment.

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