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Clinical and Personality Traits in Emotional Disorders: Evidence of a Common Framework

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Certain clinical traits (e.g., ruminative response style, self-criticism, perfectionism, anxiety sensitivity, fear of negative evaluation, and thought suppression) increase the risk for and chronicity of emotional disorders. Similar to traditional personality traits, they are considered dispositional and typically show high temporal stability. Because the personality and clinical-traits literatures evolved largely independently, connections between them are not fully understood. We sought to map the interface between a widely studied set of clinical and personality traits. Two samples (N = 385 undergraduates; N = 188 psychiatric outpatients) completed measures of personality traits, clinical traits, and an interview-based assessment of emotional-disorder symptoms. First, the joint factor structure of these traits was examined in each sample. Second, structural equation modeling was used to clarify the effects of clinical traits in the prediction of clinical symptoms beyond negative temperament. Third, the incremental validity of clinical traits beyond a more comprehensive set of higher-order and lower-order personality traits was examined using hierarchical regression. Clinical and personality traits were highly correlated and jointly defined a 3-factor structure—Negative Temperament, Positive Temperament, and Disinhibition—in both samples, with all clinical traits loading on the Negative Temperament factor. Clinical traits showed modest but significant incremental validity in explaining symptoms after accounting for personality traits. These data indicate that clinical traits relevant to emotional disorders fit well within the traditional personality framework and offer some unique contributions to the prediction of psychopathology, but it is important to distinguish their effects from negative temperament/neuroticism.

General Scientific Summary
This study suggests that certain *clinical traits* or trait-like individual differences associated with emotional disorders (i.e., unipolar depression, the anxiety disorders, posttraumatic stress disorder, and obsessive–compulsive disorder) are not fundamentally distinct from traditional personality traits and fit well within the same structural framework. Clinical traits may still contribute meaningfully to the prediction of psychopathology, but it is important to distinguish their effects from the more general and highly related trait of negative temperament/neuroticism.

Keywords: clinical traits, personality traits, neuroticism, personality taxonomy

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The emotional disorders are a cluster of strongly related conditions that, although not formally recognized as a group in *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013), have often been linked on the basis of comorbidity, similarities in presentation, shared treatment response, and common risk factors. This cluster includes (but may

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not be limited to) the depressive disorders, the anxiety disorders, posttraumatic stress disorder (PTSD), and obsessive–compulsive disorder (OCD; Barlow, 1991; Goldberg, Krueger, Andrews, & Hobbs, 2009; Watson, 2005). One avenue of research that has linked the emotional disorders is the study of trait-like individual differences, often called *clinical traits*, that are known to increase the risk for onset and chronicity of these disorders. Some of the most widely studied clinical traits with relevance to the emotional disorders are rumination, self-criticism, perfectionism, anxiety sensitivity, fear of negative evaluation, and thought suppression (Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982; Frost, Marten, Lahart, & Rosenblate, 1990; Nolen-Hoeksema, 1991; Reiss & McNally, 1985; Watson & Friend, 1969).

Conceptual development of most clinical traits initially was in the context of identifying specific risk factors for specific disorders. Subsequently, however, many of them have been reconceptualized as transdiagnostic risk factors for multiple disorders. For example, the concept of anxiety sensitivity, or the fear that sensations associated with anxious arousal have serious negative implications (e.g., "My heart is pounding, I must be having a heart attack"; Reiss, Peterson, Gursky, & McNally, 1986), was developed initially as a trait associated principally with panic disorder. Subsequently, however, it also has been linked with PTSD, generalized anxiety disorder (GAD), and social anxiety disorder (SAD; Naragon-Gainey, 2010; Schmidt, Lerew, & Jackson, 1999; Taylor, 2014). Likewise, rumination (Nolen-Hoeksema, 1987), or the tendency to respond passively to distress without engaging in problem solving, was described first in the depression literature, but has since been associated with PTSD and worry symptoms (Calmes & Roberts, 2007; Nolen-Hoeksema & Morrow, 1991).

In parallel to this work, personality psychologists have been developing a consensus, hierarchically organized framework for personality (Digman, 1990; Markon, Krueger, & Watson, 2005). Specifically, the Big Three dimensions (neuroticism, extraversion, and disinhibition; Eysenck, 1990) can be decomposed into the widely studied Big Five traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness; Digman, 1990), which then can be subdivided into a much larger number of more specific facets. This organizational structure spans both normal and pathological aspects of personality (Clark, 2005; Gore & Widiger, 2013). Many of these traits, such as extraversion, conscientiousness, and especially neuroticism, have shown strong links to the emotional disorders: trait-level differences between those with and without any given disorder may be as high as 2.2 standard deviations (*SD*s; Kotov, Gamez, Schmidt, & Watson, 2010).

Although clinical traits were developed outside of this hierarchical framework, they share a number of characteristics with traditional personality traits. For example, similar to personality traits, clinical traits are conceptualized as dispositional and show substantial temporal stability beginning in adolescence (e.g., Koestner, Zuroff, & Powers, 1991; Rodriguez, Bruce, Pagano, Spencer, & Keller, 2004; Westenberg, Gullone, Bokhorst, Heyne, & King, 2007). Emerging evidence also suggests that clinical traits, such as anxiety sensitivity and fear of negative evaluation, are heritable (Stein, Jang, & Livesley, 2002; Zavos, Gregory, & Eley, 2012) with a genetic loading similar in magnitude to that of standard personality traits (Bouchard & Loehlin, 2001). Finally, personality and clinical traits often are strongly correlated with one another. For example, neuroticism demonstrates moderate to strong positive associations with perfectionism (Rice, Ashby, & Slaney, 2007; Ulu & Tezer, 2010), self-criticism (Cox, MacPherson, Enns, & McWilliams, 2004; Henriques-Calado et al., 2013), rumination (e.g., Bagby & Parker, 2001), anxiety sensitivity (Ho et al., 2011; Norton, Cox, Hewitt, & McLeod, 1997), fear of negative evaluation (Hazel, Keaten, & Kelly, 2014; Levinson & Rodebaugh, 2011), and thought suppression (Erskine, Kvavilashvili, & Kornbrot, 2007; Muris, Merckelbach, & Horselenberg, 1996). Likewise, agreeableness and conscientiousness are negatively correlated with self-criticism (Henriques-Calado et al., 2013; Thompson & Zuroff, 2004) and lower levels of these traits, as well as extraversion, are associated with greater rumination (Bagby & Parker, 2001).

There is also evidence from incremental-validity studies to suggest that traits previously thought to be unique to the personality or clinical frameworks may tap common constructs. The extent of this overlap, however, remains unclear. For example, one investigation of perfectionism found that it was largely subsumed by neuroticism and provided almost no additional utility in the prediction of depression (Rice et al., 2007), whereas another suggested that it was a facet of neuroticism but continued to account for additional unique variance (Sherry, Gautreau, Mushquash, Sherry, & Allen, 2014). Although magnitude estimates vary, other clinical traits including self-criticism (Clara, Cox, & Enns, 2003; Dunkley, Blankstein, Zuroff, Lecce, & Hui, 2006), rumination (Hervas & Vazquez, 2011; Muris, Roelofs, Rassin, Franken, & Mayer, 2005; Roelofs, Huibers, Peeters, Arntz, & van Os, 2008), and fear of negative evaluation (Kotov, Watson, Robles, & Schmidt, 2007) generally show at least moderately diminished predictive utility when neuroticism is included in models. Relatively little research, however, has examined traits such as agreeableness and conscientiousness in the context of clinical traits, and almost no work has incorporated personality traits at a level lower in the personality-trait hierarchy than the Big Five. Thus, it remains unclear exactly how clinical and personality traits relate in the context of a broader multitrait, transdiagnostic framework.

The Current Study

In summary, various links between clinical and traditional personality traits have been reported, but the magnitude and specificity of these effects is uncertain. Furthermore, existing studies have relied largely on nonclinical samples, rarely have considered lower-order personality traits, and have examined only one or two clinical traits at a time. We sought to address these limitations and to provide a map of the interface between a set of widely studied clinical and traditional personality traits in the context of the emotional disorders. To that end, we conducted structural analyses of the clinical traits described here jointly with Big Three, Big Five, and lower-order personality markers. We investigated the robustness of these structural findings across clinical and nonclinical populations. Next, we specifically probed relations between negative temperament and the clinical traits to better parse apart the relationship between these related constructs. Finally, we evaluated the ability of clinical traits to predict symptoms of emotional disorders above and beyond traditional personality traits, including traits at a lower level of the personality-trait hierarchy than the Big Five (i.e., lower-order traits).

Method

Participants

Participants included (a) undergraduates at the University of Iowa (N = 385) and (b) psychiatric patients at mental health clinics (N = 188). Undergraduates participated in partial fulfillment of a required research-experience component of an introductory psychology course. Psychiatric patients were recruited from the waiting rooms of three outpatient mental health clinics and one inpatient psychiatric facility located in Iowa City, Iowa. Patients were offered monetary compensation for their participation. Assessments were conducted in person at a University of Iowa laboratory facility.

The student sample was predominantly female (73%) and Caucasian (92%), with a mean age of 19.0 years (range = 18–40, SD = 2.0). The patient sample was also largely female (69%) and Caucasian (92%), with a mean age of 40.6 years (range = 18–77, SD = 12.7). Thirty-two percent of students reported a lifetime history of mental health treatment and 6% were currently in treatment. All patients reported a lifetime history of treatment and 89% were currently in treatment. All procedures were conducted in accordance with those approved by the University of Iowa's internal review board.

Measures

Personality traits.

Higher- and lower-order traits. The Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993) is a 375-item True/False omnibus personality inventory assessing 15 personality traits, including three scales that assess the core of the Big Three domains and 12 additional lower-order traits. The SNAP has strong reliability and construct validity (Clark, Simms, Wu, & Casillas, 2014; Simms & Clark, 2006).

The Big Five. The Big Five Inventory (BFI; John, Donahue, & Kentle, 1991; John, Naumann, Soto, & York, 2008) is a widely used 44-item measure of the Five-Factor Model of personality. The BFI has good internal consistency, test–retest reliability, and convergent and discriminant validity (John et al., 2008).

Clinical traits.

Self-criticism. The Reconstructed Depressive Experiences Questionnaire (R-DEQ; Bagby, Parker, Joffe, & Buis, 1994) is a measure of trait predispositions to depression adapted from the original DEQ (Blatt, D'Afflitti, & Quinlan, 1976). The revised scoring scheme uses an unweighted sum of relevant items. Only the 9-item Self-Criticism scale was administered in the current study. The R-DEQ has good stability, internal consistency, and criterion validity (Bagby et al., 1994).

Rumination. The Response Styles Questionnaire Ruminative Response Scale (RSQ-RRS; Nolen-Hoeksema & Morrow, 1991) measures four types of responses to depression. The RSQ-RRS has good reliability and predictive validity (Nolen-Hoeksema, 2000). Recent structural evidence suggests that the RSQ-RRS may be decomposed into two subscales (Bagby & Parker, 2001; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). We found, however, that these subscales correlated strongly (r = .64 in patients, r = .76 in students) and showed highly similar patterns of correlates in our data. Thus, we elected to follow the traditional scoring approach for this measure and used the 22-item RRS total score.

Anxiety sensitivity. The Anxiety Sensitivity Index Revised (ASI-R; Peterson & Reiss, 1992/1993) is a widely used 16-item measure that assesses fear of anxious arousal (e.g., "It scares me when I feel faint"). The ASI-R is internally consistent and displays validity in predicting future panic attacks (McNally, 2002).

Perfectionism. The Multidimensional Perfectionism Scale (MPS; Frost et al., 1990) measures six aspects of perfectionism. We elected to use only the Concern over Mistakes subscale, which is most robustly associated with emotional-disorder symptoms across clinical (Antony, Purdon, Huta, & Swinson, 1998) and nonclinical samples (Stöber & Joormann, 2001).

Fear of negative evaluation. The Brief Fear of Negative Evaluation scale— Straightforward subscale (BFNE-S; Rodebaugh et al., 2004; Weeks et al., 2005) contains the eight straightforwardly worded items from the original BFNE (Leary, 1983). The BFNE-S has excellent internal consistency and construct validity for the assessment of negative evaluation fears (Rodebaugh et al., 2004; Weeks et al., 2005).

Thought suppression. The White Bear Suppression Inventory—Revised (WBSI-R; Muris et al., 1996) is a 10-item version of the original 15-item White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) that taps efforts to control or suppress intrusive thoughts (e.g., "I always try to put problems out of my mind"). The measure possesses good internal consistency, reliability, and test-retest stability (Muris et al., 1996).

Emotional disorder symptoms. The Interview for Mood and Anxiety Symptoms (IMAS; see Kotov, Perlman, Gámez, & Watson, 2015) is a semistructured interview that provides a dimensional assessment of emotional-disorder symptoms over the past month. It covers all *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; American Psychiatric Association, 2000) criteria. Symptoms are rated on a 3-point scale and scored using factor analytically derived scales. The scales show clear convergent, discriminant, and criterion validity (Kotov et al., 2015; Watson et al., 2007). In the present samples, IMAS scale alphas ranged from .71 to .90 (M = .79) in students and from .80 to .94 (M = .87) in patients. The IMAS was administered by lay interviewers, each of whom completed a 20-hr, intensive training program. Interrater agreement was excellent for all scales: Intraclass correlations (one-way random) ranged from .97 to 1.00 (students) and from .97 to .99 (patients).

Data Analysis

We initially examined correlations among traits. Next, their joint structure was evaluated using principal axis factoring with promax rotation. We also conducted a follow-up confirmatory factor analysis (CFA) to assess goodness of model fit across both samples. These CFA models were based on the exploratory factor analysis (EFA) presented here and were not based on a priori hypotheses as is customary in CFA.

Next, given evidence indicating that clinical traits are particularly strongly associated with negative temperament, we used structural equation modeling (SEM) to explicate the unique effects of clinical traits in the prediction of clinical symptoms above and beyond this broad personality trait. In the first model, we defined a single common factor to represent negative temperament, which included all scales that loaded on it in EFA, and regressed each symptom scale on it in turn. In the second model, we regressed

each symptom scale on the common factor and error terms of the six clinical traits. These two models were then compared to determine the incremental predictive utility of clinical traits above and beyond the negative temperament dimension. The standard error of the mean (SEM) analyses were performed in Mplus (Muthén & Muthén, 2015) using the maximum likelihood robust (MLR) estimator. The MLR estimator is recommended for data that do not conform to assumption of multivariate normality and we sought to avoid reliance on this assumption.

Finally, we tested the incremental validity of clinical traits in the prediction of psychological symptoms using a traditional hierarchical regression approach to control for effects of all personality dimensions. Twenty traditional personality traits (5 from the BFI and 15 from the SNAP) were entered as the first block, and six clinical traits were entered as the second block. We elected to test this model using a regression approach as it more readily accommodates the inclusion of numerous additional control variables. The regression analyses were performed using SPSS version 23.0.

Results

Preliminary Analyses

Full descriptive and scale reliability data, are available in the online supplemental materials. The internal consistency reliability of study measures was generally high in both samples.

Relations Between Clinical and Personality Traits

The six clinical traits were positively intercorrelated in both samples (rs = .37 to .63; all ps $< .01$), as expected. In both samples, the strongest associations were between perfectionism and (a) fear of negative evaluation (r = .65, patients; r = .61, students) and (b) self-criticism (r = .58 and .61, respectively). BFI Neuroticism was substantially positively correlated with all six clinical traits (mean r = .48, patients; r = .51, students). The weakest correlation, although notably still moderately high, was between Neuroticism and the anxiety sensitivity (r = .37, $p < .01$) in patients. Relations between the other BFI scales and the clinical traits were more modest (rs = −.43 to .12). SNAP Negative Temperament correlated moderately to strongly with all clinical traits in both samples, (mean r = .54, patients; mean r = .55, students). Corresponding correlations for SNAP Positive Temperament and SNAP Disinhibition were universally very small to modest in magnitude. For the other SNAP scales, patterns of association were highly similar between the patient and student samples. The clinical traits correlated primarily with lower-order traits associated with the neuroticism domain, with Self-Harm and Mistrust producing notably strong correlations. In contrast, lower-order traits associated with extraversion generally had relatively weak correlations with the clinical traits in both samples; the one exception was SNAP Detachment, which correlated appreciably with self-criticism in both samples (r = .40, patients; r = .45, students). In the disinhibition domain, the correlations were generally weak. Full correlation tables are available in the online supplemental material.

To assess the overall contributions of personality to clinical traits, we constructed six linear regression models for each sample, wherein the 20 BFI/SNAP scores were simultaneously entered to predict each clinical trait. Jointly, the personality traits accounted for roughly half of the variance in the clinical traits. They accounted for the greatest amount of variance in self-criticism (67% in patients, 64% in students) and the least variance in anxiety sensitivity (31% in patients, 30% in students).

Joint Factor Structure

Exploratory factor analysis. These analyses suggest that clinical traits share a strong and specific connection with the neuroticism/negative temperament domain. To test this more rigorously, we conducted joint exploratory factor analyses of the 20 personality scales and the six clinical traits in each sample. Initial examination of the data suggested that both samples were appropriate for extraction (patient Kaiser-Meyer-Olkin [KMO] = .85; students' KMO = .86; Bartlett's Test of Sphericity, $p < .001$ in both samples). The scree plot suggested a three-factor solution in both samples (first five eigenvalues were 7.61, 3.76, 2.66, 1.58, 1.27 in the patients; and 7.77, 3.37, 2.67, 1.78, 1.19 in the students). Moreover, solutions with greater numbers of factors were not interpretable. In the four-factor solution, the fourth factor was uninterpretable in both students (the only variables with primary loadings were SNAP Entitlement and SNAP Workaholism) and patients (the only clear marker was SNAP Dependency). In the five-factor solution, the fifth factor had only one primary loading in both patients (SNAP Dependency) and students (BFI Openness). Thus, the three-factor solution was retained for both samples.

The three-factor solution for the patient data is presented in Table 1. Factor 1 was defined by SNAP Negative Temperament, BFI Neuroticism, and related scales; hence we labeled it *Negative Temperament*. Factor 2 was defined by SNAP Disinhibition and related scales (e.g., Impulsivity and Manipulativeness), as well as low BFI Agreeableness and Conscientiousness; hence, we labeled it *Disinhibition*. Factor 3 was defined by SNAP Positive Temperament, BFI Extraversion, and related scales, with a modest loading by BFI Openness; hence we labeled it *Positive Temperament*. SNAP Workaholism and SNAP Propriety cross-loaded between Factors 1 and 2. It is noteworthy that all six clinical traits were strong, clear markers of the Negative Temperament factor, with loadings ranging from .59 to .75 (mean loading = .68).

The three-factor solution for the student data is presented in Table 2. As in the patient sample, Factor 1 was defined primarily by SNAP Negative Temperament, BFI Neuroticism, and related scales; hence, we again named this factor *Negative Temperament*. Three SNAP scales associated with the Disinhibition domain (i.e., Workaholism, Propriety, and Manipulativeness) had primary loadings on Factor 2 (although they also cross-loaded on Factor 1), which was characterized by SNAP Disinhibition and Impulsivity, as well as low BFI Conscientiousness and Agreeableness; hence we called this factor *Disinhibition*. Factor 3 was defined by the SNAP Positive Temperament scales and BFI Extraversion; hence we labeled it *Extraversion*. Of note, SNAP Detachment cross-loaded on Factors 1 (positive loading) and 3 (negative loading), with the primary loading on Factor 1. Once again, the clinical traits all had substantial loadings on Negative Temperament (range .56 to .77, mean loading = .69) and no notable secondary loadings.

Table 1
Factor Structure of Personality and Clinical Traits in Patient Data

Personality or clinical trait	Factor 1 Negative temperament	Factor 2 Disinhibition	Factor 3 Positive temperament
Negative temperament	**.77**	.12	−.01
Fear of negative evaluation	**.75**	−.07	−.07
Self-criticism	**.74**	.10	−.18
Perfectionism	**.70**	−.10	−.05
Mistrust	**.66**	.11	−.04
Thought suppression	**.65**	.08	.02
Neuroticism	**.62**	.10	−.16
Rumination	**.62**	.09	−.03
Workaholism	**.61**	**−.41**	.28
Propriety	**.59**	**−.45**	.15
Anxiety sensitivity	**.59**	−.05	.03
Self-harm	**.47**	.24	−.33
Eccentric perceptions	**.47**	.27	.27
Dependency	**.37**	.12	.04
Disinhibition	−.07	**.99**	.16
Impulsivity	−.04	**.77**	.15
Manipulativeness	.24	**.66**	.17
Conscientiousness	.02	**−.62**	.25
Aggression	.31	**.45**	.16
Agreeableness	−.18	**−.38**	.13
Positive temperament	.07	−.15	**.81**
Extraversion	−.11	.13	**.70**
Exhibitionism	−.05	.25	**.70**
Entitlement	.15	.01	**.69**
Detachment	.18	−.01	**−.68**
Openness	−.03	.09	**.41**

Note. $N = 188$. Factor loadings >.35 are in boldface type. Clinical traits are italicized. Personality traits are drawn from the Big Five Inventory and Schedule for Nonadaptive and Adaptive Personality.

Similarity in factor structure was assessed via two methods: congruence coefficients (based on the factor loadings) and comparability coefficients (Finn, 1986; Gorsuch, 1983; Harman, 1976). All congruence coefficients exceeded Everett's (1983) .90 benchmark and all three factors produced comparability coefficients (CCs) of .96 or better (Factor 1: CC = .99, Factor 2: CC = .97, and Factor 3: CC = .96), suggesting the same basic factors emerged in both samples.

Confirmatory factor analysis. We conducted a follow-up CFA to assess goodness of model fit across both samples based on the structure indicated by the EFA analyses. These CFA models were constructed only for the purposes of assessing goodness-of-model fit and were not based on a priori hypotheses. Using Hu and Bentler (1999) criteria, fit estimates generally indicated marginally acceptable to poor fit for both the patient and student samples (patients: root-mean-square error of approximation [RMSEA] = .09, standardized root-mean-square residual [SRMR] = .09, comparative fit index [CFI] = .75, Tucker-Lewis index [TLI] = .72; students: RMSEA = .12, SRMR = .10, CFI = .70, TLI = .63). This indicates that the three-factor structure does not capture all of the covariations in the data, but as described earlier, four- and five-factor factor models did not replicate across samples; we therefore retained the three-factor solution for further study.

Incremental Validity of Clinical Traits in Predicting Symptoms

Stepwise latent variable regression probing negative temperament. We estimated two SEM models for each clinical symptom scale of the IMAS. Model 1 regressed the IMAS scale on a single latent factor defined by all scales associated with Negative Temperament in the EFA analyses (Negative Temperament, Mistrust, Neuroticism, Eccentric Perceptions, Self-Harm, Dependency, Workaholism, and Propriety as well as the six clinical traits). Model 2 regressed the IMAS scale on the common latent factor and error terms of the six clinical traits (see Table 3). It is noteworthy that the clinical traits contributed to symptoms above and beyond Negative Temperament factor in 7 of 12 analyses (the exceptions were SAD and OCD in the patient sample, and GAD, panic disorder, and SAD in the student sample), although their incremental contributions generally were modest (in patients, R^2 change ranged from .00 to .18, with a mean value of .07; in students, R^2 change ranged from .00 to .05, with a mean value of .03). Fit estimates for these models ranged from poor to acceptable (patients: RMSEA = .08–.09, CFI = .86–.89, TLI = .85–.87; students: RMSEA = .11, CFI = .79, TLI = .75–.77) as the result of associations among personality scales not captured by the common factor.

Hierarchical regression analysis of personality and clinical traits. To assess more broadly the incremental validity of the clinical traits in predicting emotional-disorder symptoms beyond

Table 2
Factor Structure of Personality and Clinical Traits in Student Data

Traits	Factor 1 Negative temperament	Factor 2 Disinhibition	Factor 3 Positive temperament
Negative temperament	**.83**	−.01	.01
Self-criticism	**.77**	.10	−.16
Perfectionism	**.76**	−.24	.08
Thought suppression	**.73**	.01	.06
Fear of negative evaluation	**.70**	−.18	.01
Mistrust	**.69**	.15	−.01
Neuroticism	**.66**	−.02	−.23
Anxiety sensitivity	**.59**	−.13	.00
Rumination	**.56**	.04	−.09
Eccentric perceptions	**.53**	.11	.21
Self-harm	**.49**	.26	−.16
Detachment	**.44**	−.05	**−.43**
Dependency	**.39**	.08	−.08
Disinhibition	.08	**.93**	.25
Impulsivity	.02	**.82**	.18
Conscientiousness	−.11	**−.65**	.22
Propriety	**.36**	**−.60**	.22
Workaholism	**.47**	**−.56**	.30
Manipulativeness	**.40**	**.54**	.26
Aggression	**.38**	**.39**	.06
Agreeableness	−.32	**−.38**	.08
Positive temperament	−.09	−.24	**.73**
Exhibitionism	−.04	.22	**.69**
Extraversion	−.22	.16	**.63**
Entitlement	.06	−.19	**.51**
Openness	.08	.02	.27

Note. $N = 380$. Factor loadings >.35 are in boldface type. Clinical traits are italicized. Personality traits are drawn from the Big Five Inventory and Schedule for Nonadaptive and Adaptive Personality.

Table 3
Variance Accounted for in Emotional-Disorders Symptoms by Negative Temperament and Clinical Traits in SEM Model

ΔR^2	Depression	GAD	PTSD	Panic	SAD	OCD
Patients						
1. Negative temperament	.54***	.51***	.49***	.26***	.31***	.16**
2. Negative temperament + Clinical traits	.04**	.07**	.07**	.18***	.00	.03
χ^2	21.50 (6)	17.18 (6)	17.30 (6)	37.66 (6)	1.98 (6)	7.07 (6)
Students						
1. Negative temperament	.44***	.44***	.37***	.18***	.31***	.22***
2. Negative temperament + Clinical traits	.03*	.05	.03**	.03	.00	.03*
χ^2	13.57 (6)	10.50 (6)	21.26 (6)	12.00 (6)	5.63 (6)	13.11 (6)

Note. Two models were fit in each sample. In Model 1, symptom dimensions were regressed on a latent factor (i.e., Negative temperament), constructed from scales with primary loadings on Negative temperament in the original exploratory factor analysis (i.e., Negative temperament, Mistrust, Neuroticism, Eccentric perceptions, Self-harm, Dependency, Workaholism, Propriety and the six Clinical traits). In Model 2, symptom dimensions were regressed on the latent factor (Negative temperament) plus the error terms for the six clinical traits. A chi-square test was used to evaluate the significance of the change in R^2 from Model 1 to Model 2. SEM = structural equation modeling; GAD = generalized anxiety disorder; PTSD = posttraumatic stress disorder; SAD = social anxiety disorder; OCD = obsessive–compulsive disorder.
* $p < .05$. ** $p < .01$. *** $p < .001$.

traditional personality (both higher- and lower-order traits), we conducted three-step hierarchical linear regression analyses in each sample. In these analyses, the five BFI scales were entered in Step 1, the 15 SNAP scales were entered in Step 2, and the 6 clinical traits were entered in Step 3; the six IMAS scales (OCD, Panic, SAD, PTSD, GAD, and Depression) served as the criterion variables. Models were fit in the two samples separately; the resulting R^2 values are presented in Table 4.

Overall, the five BFI traits together accounted for a substantial proportion of the variance in the IMAS symptom scales (10%–40%; all *p*s $< .05$). The addition of SNAP lower-order traits in Step 2 contributed significantly to the prediction of all six IMAS symptom domains with the most substantial contributions to IMAS Depression (ΔR^2 students = .13, $p < .001$; ΔR^2 patients = .17, $p < .001$), PTSD (ΔR^2 students = .18, $p < .001$; ΔR^2 patients = .28, $p < .001$), and GAD (ΔR^2 patients = .18, $p < .001$). In Step 3, the clinical traits contributed significantly in 11 of 12 analyses (the exception was the prediction of OCD in the patient sample). Overall, they accounted for an additional 2%–8% in the patient sample ($M = 6\%$) and 3%–7% in the student sample ($M = 4\%$).

Table 4
Variance Accounted for in Emotional-Disorders Symptoms by Personality and Clinical Traits

ΔR^2	Depression	GAD	PTSD	Panic	SAD	OCD
Patients						
1. BFI	.38***	.37***	.25***	.19***	.40***	.10**
2. SNAP	.17***	.18***	.28***	.14**	.17***	.16**
3. Clinical traits	.08***	.05**	.06**	.07*	.02*	.05
Students						
1. BFI	.28***	.32***	.20***	.11***	.26***	.11***
2. SNAP	.17***	.13***	.18***	.10***	.11***	.12***
3. Clinical traits	.04***	.03**	.07***	.03*	.04**	.03*

Note. Two parallel models are presented for each sample. For both models, Step 1 includes the Big Five Inventory (BFI) traits, Step 2 includes all 15 Schedule for Nonadaptive and Adaptive Personality (SNAP) traits, and Step 3 includes the six clinical traits. GAD = generalized anxiety disorder; PTSD = posttraumatic stress disorder; SAD = social anxiety disorder; OCD = obsessive–compulsive disorder.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Summary and Integration of the Findings

The purpose of this investigation was to map the interface between clinical and personality traits in the context of emotional-disorder symptoms. Although clinical traits are dispositional constructs that resemble personality dimensions, they rarely have been studied in the context of basic trait frameworks, such as the Big Five or Big Three. Moreover, it is even less common for them to be investigated alongside more-specific lower-order personality traits. Thus, relations between clinical and traditional traits are not fully understood. We therefore conducted joint structural analyses of six of the more commonly used clinical traits, together with the Big Three, Big Five, and lower-order personality markers in both a clinical and a nonclinical sample. Furthermore, we evaluated the incremental validity of these clinical traits in predicting symptoms of emotional disorders.

As expected, the clinical traits were highly correlated with negative temperament/neuroticism in both samples, with particularly strong links to the lower-order traits of self-harm and mistrust. The joint factor structure was remarkably consistent, as all six clinical traits were strong markers of the negative temperament dimension in both samples. Moreover, the clinical-trait scales had no salient cross-loadings on positive temperament or disinhibition. This is consistent with previous studies, which have found a strong association between clinical traits and neuroticism, and weaker or nonexistent relations with other higher-order traits (e.g., Dunkley et al., 2006; Kotov et al., 2007). Importantly, clinical traits did not form a factor of their own although there were more than enough markers for such a dimension to emerge. Consequently, these clinical traits likely can be contextualized within the traditional personality structure. Of note, the follow-up CFA aimed at examining model fit suggested a generally poor fit of the 3-factor model to the data. This is not an atypical finding in the personality trait literature and such findings often have been attributed to the complexity of personality structure (see Hopwood & Donnellan, 2010). Nevertheless, other possibilities should be considered such as the item-level construction of personality scales. For example, it is not uncommon for items to tap variance from more than one

trait. Although the primary reason for aggregating items into scales is so that item variance not tapping the target trait cancels out across items, this process does not always fully succeed in this aim. Additionally, personality scales tend to be aimed at assessing relatively broad constructs; thus, they often include multiple sources of reliable variance (e.g., lower-order dimensions) in addition to the target construct. This may be especially problematic when scales tapping several broad constructs (e.g., the Big Five, positive temperament, negative temperament) are simultaneously included in a model. As a result, the poor fit observed here could legitimately reflect the presence of additional unmodeled variance.

Overall, our analyses suggest that clinical traits are akin to facets of negative temperament or neuroticism. They are narrower in content than some traditional facets or lower-order traits (e.g., suspiciousness, aggression), but their scope is quite similar to others, including self-harm and dependency. In fact, dependency has been developed both as a clinical trait (Beck, Epstein, Harrison, & Emery, 1983) and a traditional trait (Clark, 1993; Livesley & Jackson, 2002), sometimes under different labels, with clear evidence that these two literatures have been exploring the same basic construct (Morgan & Clark, 2010). Anxiety sensitivity and rumination were the two clinical traits most distinct from negative temperament—they had lower factor loadings than other clinical traits in both samples—indicating that they are related to negative temperament but also include additional variance independent of this dimension. This is consistent with previous studies highlighting the incremental validity of rumination and anxiety sensitivity over and above neuroticism in the prediction of disorders such as depression and panic disorder (e.g., Cox, Taylor, Clara, Roberts, & Enns, 2008; Drost et al., 2012). It is notable, however, that the unique variance contributed by these variables has traditionally been small in magnitude; moreover, their loadings on the negative temperament factor were still considerable in both samples.

Overall, the traditional personality scales jointly accounted for substantial variance in the clinical traits (23% to 57% total), with BFI traits accounting for 10%–40% in Step 1 and SNAP lower-order traits adding an additional 10%–28% in Step 2. However, appreciable unique variance clearly remained within each clinical trait. Our next question was whether this unique variance was salient to the emotional disorders or whether all relevant variance was shared with personality traits and facets. Hence, we examined the incremental validity of the clinical traits in predicting emotional disorder symptoms beyond personality. SEM analyses produced a generally similar pattern of findings across the two samples, albeit with a notably more sizable contribution from the clinical traits to panic in the patients (18%). Furthermore, controlling for additional personality variables in the stepwise regression approach resulted in little if any reduction in the incremental validity of the clinical traits. In both samples the six clinical traits showed small-to-modest incremental validity over the Big Five and SNAP lower-order traits. In patients, the six clinical traits jointly accounted for 2%–8% of unique variance, with the largest contributions being to Depression and Panic, and little to no additional variance accounted for in SAD or OCD. Likewise in students, the clinical traits only accounted for an additional 3%–7% of the variance in symptoms, with the largest contribution being to PTSD. These findings further confirm the unique—but relatively modest—incremental predictive power of the clinical traits examined here.

Broadly speaking, these findings suggest that clinical traits are at least partially distinct from traditional personality traits such as negative temperament and positive temperament, but share substantial variance with these constructs. This is also reinforced by the marginal fit indices obtained in the CFA, which suggest that clinical traits have some unique variance not captured by negative temperament. As noted, although the clinical traits were able to account for incremental variance in the emotional disorders, the additional variance contributed was modest in magnitude. Regardless, even this modest variance is notable given the high bar set by the prior inclusion of so many variables (20) in the regression analysis and the more rigorous approach to controlling for increased measurement reliability provided by the SEM analysis of negative temperament. These results suggest that clinical traits provide information in the prediction of these disorders that cannot be captured entirely by traditional traits. This may be particularly true for panic disorder, which emerged as having a more substantive contribution from the clinical traits. Perhaps this is due to the relatively greater degree of distinction observed between anxiety sensitivity (i.e., the trait most strongly linked with panic disorder) and negative temperament. Such incremental predictive power is consistent with the hierarchical organization of personality, in which lower-order traits share variance that reflects a general factor, but are distinguished from each other by unique variance (Digman, 1990; Markon, Krueger, & Watson, 2005). Nonetheless, our findings more broadly indicate that clinical and traditional traits are not fundamentally distinct constructs, and that clinical traits may be best conceptualized as indicators, alongside other lower-order traits, within a comprehensive personality structure.

Limitations and Future Directions

This study has several limitations. First, although we assessed a broader range of clinical traits than has been examined simultaneously in prior studies, we did not evaluate all candidate traits posited in the emotional-disorders literature, such as disgust sensitivity (Tolin, Woods, & Abramowitz, 2006) and intolerance of uncertainty (Berenbaum, Bredemeier, & Thompson, 2008; Dugas, Freeston, & Ladouceur, 1997). These other clinical traits may show a different pattern of associations with personality dimensions. Second, we used a single measure of lower-order personality traits (i.e., the SNAP), which reflects primarily the Big Three personality domains. Including an alternative inventory (e.g., a faceted Big Five measure) would have allowed modeling of other lower-order dimensions. It is likely, however, that such measures would yield similar results, as there is no evidence that any clinical traits have substantial links to extraversion, conscientiousness, agreeableness, or openness. Third, traits were assessed entirely via self-report. A more comprehensive assessment would use data from multiple sources (e.g., significant others, interviewers) and longitudinal observations. Nonetheless, multisource and multiobservation studies on personality taxonomy have been consistent with findings of self-report studies (e.g., Kandler, Bleidorn, Riemann, Angleitner, & Spinath, 2011; Samuel et al., 2013), so these results likely are highly generalizable. Finally, another factor to consider is that the IMAS assesses past-month emotional-disorder symptoms, whereas the personality- and clinical-trait scales mea-

sure dispositional characteristics. Although this state-trait mismatch is inherent in such investigations, it does have the potential to attenuate effect sizes and should be considered when interpreting the results of such work.

Despite these limitations, the present study contributes significantly to our understanding of the close link between two prominent but heretofore largely disconnected literatures. More work is needed to bridge the gap between personality- and clinical-psychology research. The available evidence argues that clinical traits fit well within the personality framework and are not fundamentally different from traditional traits. Clinical traits may offer unique contributions to the prediction of psychopathology, but it is important to distinguish their effects from the more general and highly related trait of negative temperament/neuroticism. Therefore, it is essential for researchers exploring links between clinical traits and psychopathology to control for related personality traits to ensure that findings actually are attributable to the target construct. Future work might also investigate the structure of traits within the negative-temperament domain. A more nuanced understanding of the organization of the structure of traits within this domain is likely to prove useful in improving our understanding of comorbidity among emotional disorders.

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