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DSM–5 Alternative Model for Personality Disorders Trait Domains and PTSD Symptoms in a Sample of Highly Traumatized African American Women and a Prospective Sample of Trauma Center Patients

Jessica L. Maples-Keller[1], Courtland S. Hyatt[2], Chelsea E. Sleep[2], Jennifer S. Stevens[1], Emily E. Fenlon[1], Tanja Jovanovic[1], Barbara O. Rothbaum[1], Kerry J. Ressler[1, 3], Sierra Carter[1, 4], Bekh Bradley[1], Negar Fani[1], Abigail Powers[1], and Vasiliki Michopoulos[1, 5]

[1] Department of Psychiatry and Behavioral Sciences, Emory University School of Medicine
[2] Department of Psychology, University of Georgia
[3] Department of Psychiatry, Mclean Hospital, Harvard Medical School
[4] Department of Psychology, Georgia State University
[5] Yerkes National Primate Research Center, Atlanta, Georgia, United States

Posttraumatic stress disorder (PTSD) has a specified precipitant (i.e., trauma), and thus, is particularly well-suited to examine risk and maintenance factors for the development of the disorder. The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM–5*) alternative model of personality disorder (AMPD) is based, in part, on a dimensional trait model; previous research suggests that personality traits are related to PTSD symptoms. To date, there is little research examining this model with regard to PTSD symptoms, and such research could elucidate new strategies for identification and prevention. The present study investigates associations between AMPD traits and PTSD symptoms in a cross-sectional high-risk sample (N = 490; 100% female; 97.8% African American) and in a prospective, longitudinal sample of Level 1 trauma center patients (N = 185; 46.8% female; 72.5% African American). The Personality Inventory for *DSM–5* Brief Form domains were significantly associated with PTSD total symptom severity and symptom clusters across both self-report and clinical interview measures. Personality Inventory for *DSM–5* Negative Affectivity and Psychoticism emerged as significant predictors of concurrent PTSD. When prospectively predicting PTSD symptoms in the longitudinal cohort, Negative Affectivity and Psychoticism were significant predictors of PTSD symptom severity. These findings indicate how the *DSM–5* AMPD pathological traits are associated with risk for stress-related disorders cross-sectionally and prospectively.

Keywords: personality, personality disorders, trauma, posttraumatic stress disorder

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Relative to the general population, exposure to traumatic events is particularly high among socioeconomically disadvantaged, non-White individuals residing in urban communities (Goldmann et al., 2011). African Americans are more likely to meet criteria for posttraumatic stress disorder (PTSD) and experience elevated PTSD risk across the life span (Himle et al., 2009), indicating the importance of understanding PTSD risk in higher risk communities. Unlike other psychiatric disorders, PTSD has a specified precipitant (i.e., trauma), and thus, is particularly well-suited to examine risk factors for the development of the disorder. Researchers have examined how personality traits relate to and may influence the development of PTSD. In a review, Miller (2003) concluded that in the language of the five-factor model of personality (FFM), high Neuroticism (i.e., tendency to experience nega-

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Jessica L. Maples-Keller https://orcid.org/0000-0003-4768-7332
Chelsea E. Sleep https://orcid.org/0000-0002-8769-3529
Jennifer S. Stevens https://orcid.org/0000-0003-4674-0314
Kerry J. Ressler https://orcid.org/0000-0002-5158-1103
Abigail Powers https://orcid.org/0000-0003-3197-7415
Vasiliki Michopoulos https://orcid.org/0000-0003-2531-923X
Abigail Powers and Vasiliki Michopoulos contributed equally.

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Correspondence concerning this article should be addressed to Jessica L. Maples-Keller, Department of Psychiatry and Behavioral Sciences, Emory University School of Medicine, 12 Executive Park Drive NE, Office 331K, Atlanta, GA 30329, United States. Email: jessmaples@gmail.com

tive emotions) represents a primary personality risk factor for the onset and course of PTSD. Low Extraversion (i.e., tendency to have an approach orientation or to seek out social interaction, exciting activities, and positive emotions) and Conscientiousness (i.e., tendency to exhibit a driven, organized approach to work and the ability to delay gratification) are also associated with PTSD (James et al., 2015; Miller, 2003). A meta-analysis found that PTSD was positively associated with Neuroticism and negatively associated with Extraversion and Conscientiousness (Kotov et al., 2010).

DSM–5 Alternative Model of Personality Disorders

Historically, personality disorders (PDs) have been diagnosed using categorical classification systems despite empirical work indicating these systems are considerably limited (Kotov et al., 2017; Krueger & Markon, 2014). Personality is better conceptualized as a continuum of higher order domains and secondary, lower order traits; thus, experts advocate for the use of dimensional models of personality pathology (Widiger & Trull, 2007). The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM–5*) included a hybrid, dimensional-categorical model of PDs (i.e., the alternative model of PD [AMPD]), which consists of personality impairment and pathological personality traits. The pathological traits are organized hierarchically, with 25 narrow facets (e.g., emotional lability, eccentricity) that load onto one or more of the five broad domains: Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism. The domains are reflective of maladaptive variants of the FFM (American Psychiatric Association, 2013), and Personality Inventory for *DSM–5* (PID-5) domains are closely aligned with corresponding FFM domains (Miller, in press; Sleep et al., 2018). The AMPD was included as an "emerging measure and model" (p. 761), and it is hoped that as empirical support and clinical application continues to amass (Skodol et al., 2015), this model will be formally adopted.

The PID-5 (Krueger et al., 2012) was developed to assess the AMPD pathological traits. Emerging work suggests that PD traits and clinical symptoms are intricately related. Indeed, theorists have argued that PID-5 is a useful organizational framework for all psychiatric disorders (Wright & Simms, 2015); however, research examining the joint structure of clinical symptoms and pathological personality traits is sparse. Nevertheless, Kotov and colleagues (2017) suggested that the phenotypic similarity commonly observed across psychiatric diagnoses is clearly linked to differential associations with personality. Broadly, the culmination of empirical work suggests that internalizing disorders largely relate to Negative Affectivity and Detachment, thought disorders map onto Psychoticism, and externalizing disorders are linked to Antagonism and Disinhibition (Kotov et al., 2017).

DSM–5 Personality Psychopathology and PTSD

Only two previous studies have investigated the relation between *DSM–5* AMPD traits and PTSD. James and colleagues (2015) examined group differences on PID-5 domains and facets in 35 veterans with PTSD and 150 control veterans. Although the groups did not differ in attention seeking, deceitfulness, grandiosity, manipulativeness, risk taking, or submissiveness, all other pathological personality traits were significantly higher among individuals with PTSD than in the control group. Notably, scores on Detachment and Psychoticism domains were the only two necessary and sufficient domains for a greater than 80% classification accuracy of PTSD status. Waszczuk and colleagues (2018) conducted a retrospective cohort study, exploring *DSM–5* AMPD personality traits indexed 10 years posttrauma among World Trade Center first responders, in relation to initial trauma responses as well as PTSD symptoms over the course of the 10 years. Negative Affectivity, Detachment, and Psychoticism were uniquely associated with initial PTSD as well as with maintenance of the disorder over 10 years.

The Present Study

Prospective longitudinal research designs are vital to advance knowledge regarding the predictive effects of personality on PTSD. To address this gap, the present investigation is the first to our knowledge to investigate *DSM–5* personality traits and PTSD symptoms prospectively. Additionally, although the two previous studies investigated these associations in veterans and emergency responders, the present study investigates these relations in high-risk predominantly African American samples. In Sample 1, we sought to investigate the cross-sectional relations between *DSM–5* AMPD traits and PTSD in African American women with high levels of trauma exposure using multiple methods of assessment (i.e., self-report and semistructured clinical interview). Next, in Sample 2, we sought to extend our findings by investigating *DSM–5* AMPD traits and prospective PTSD risk in a sample of mixed sex recent trauma survivors. Consistent with past personality findings (Kotov et al., 2010), we hypothesized that Negative Affectivity, Detachment, and Disinhibition would predict PTSD symptoms, even when controlling for trauma exposure and baseline PTSD symptomology.

Method

Participants and Procedure

Sample 1

Participants were 490 women recruited in nonpsychiatric hospital waiting rooms at Grady Memorial Hospital; demographic information for Sample 1 and 2 is presented in Table 1. Interviewers approached individuals in the clinic waiting rooms and asked if they were willing to participate. Inclusion criteria included being between 18 and 65 years of age and willing and able to provide informed consent. Almost all (97.14%) of Sample 1 endorsed a history of previous PTSD Criterion A trauma, with an average of 5.15 ($SD = 3.31$) different types of lifetime traumatic events. All study procedures received institutional review board (IRB) approval by Emory University and the Grady Hospital Research Oversight Committee (IRB00078593; Trauma-Related Health Sequelae at Grady Memorial Hospital). If the participant provided informed consent, an interview involving psychological questionnaires was administered. Participants came in for a separate research visit in which additional self-report questionnaires and a

Table 1
Demographic Characteristics of Sample 1 and Sample 2

Variable	Sample 1 (N = 490)	Sample 2 (N = 185)
Mean age (*SD*)	40.69 (12.37)	35.34 (13.01)
Sex		
Female (%)	100	46.8
Male (%)	0	53.2
Race		
African American (%)	97.8	72.5
Mixed race (%)	1.4	4
White (%)	0	19.2
Asian	0	1.4
Other (%)	0.8	2.8
Household monthly income		
<$999 (%)	46.5	27
$1,000–1,999 (%)	31.7	23.5
>$1,999 (%)	21.7	49.4
Education level		
Less than high school (%)	18	14.4
High school graduate (%)	35.8	28.2
Associate's degree or some college (%)	33.6	38.8
College graduate (%)	10	12.0
Graduate school (%)	2.5	6.6

semistructured interview was administered (see Gillespie et al., 2009, for further details).

Sample 2

Participants included 185 adults who completed an assessment within hours of their index trauma in the ED and then returned for follow-up assessments 3 and 6 months following the index trauma. Participants were recruited from the Emergency Department (ED) at Grady Memorial Hospital in Atlanta, Georgia, a Level 1 Trauma Center. All study procedures received IRB approval (IRB 000054463, Prospective Determination of Psychobiological Risk Factors for posttraumatic stress disorder). Inclusion criteria included endorsement of PTSD Criterion A trauma defined by the *DSM–IV–Text Revision*, English speaking, and between the ages of 18 and 65. Individuals were excluded if they endorsed active psychosis, active suicidal ideation, attempted suicide in the past 3 months, were intoxicated, or had altered mental status. Participants who completed PID-5 data were a subset of participants from a larger study investigating predictive biomarkers of PTSD (see Michopoulos et al., 2019, for further details on study procedures). Trauma type were as follows: motor vehicle accident = 50.9%, pedestrian versus auto = 11.1%, nonsexual assault = 8.3%, motorcycle crash = 5.6%, industrial/home accident = 4.6%, sexual assault = 4.2%, bicycle accident = 4.2%, stabbing = 3.2%, fall = 3.2%, gunshot wound = 2.8%, animal bite/attack = 1.4%, other = 0.5%.

Measures

Trauma exposure was assessed using the Childhood Trauma Questionnaire (measure of child maltreatment severity; Bernstein et al., 2003) and Traumatic Events Inventory (count of types of traumatic events exposed across the life span; Gillespie et al., 2009). Personality traits were assessed using the PID-5-Brief Form (PID-5-BF; Krueger et al., 2013), a 25-item self-report measure of pathological personality traits included in the *DSM–5* AMPD. Cronbach's α was as follows (Sample 1/Sample 2): Negative Affectivity α = .83/.74, Detachment α = .76/.73, Antagonism α = .54/.61, Disinhibition = .69/.70, and Psychoticism α = .77/.74. Current PTSD symptoms were assessed using the Modified PTSD Symptom Scale for *DSM–IV* (PSS; Sample 1 and 2; Foa et al., 1993) and the Clinician Administered PTSD Scale for *DSM–5* (CAPS-5; Sample 1 only; Weathers et al., 2013). Lifetime PTSD before the presenting traumatic event was assessed in the baseline assessment using the Posttraumatic Stress Diagnostic Scale (PDS; Foa et al., 1997). CAPS-5 were conducted by trained clinical interviewers supervised by a team of licensed clinical psychologists. Interrater reliability (IRR) for the CAPS-5 diagnostic interview within this sample has been investigated previously and showed good IRR (k = 0.83; Powers et al., 2017). For Sample 2, PTSD scores represent total symptom severity 6 months following the PTSD Criterion A trauma. Of note, this assessment was 3 months after the PID-5 BF data were collected, so we used 6 months to indicate temporal relationship to the trauma, not relative to PID-5 BF data collection. Descriptive information for all personality and PTSD variables is available in Table 2. PID-5 domain scores range from 0 to 15, CAPS-5 severity scores range from 0 to 80, and PDS and PSS scores range both from 0 to 51.

Analytic Plan

First, we calculated the bivariate relations between the PID-5 domains and PTSD symptoms in both samples. Next, we conducted a series of multiple regression analyses predicting PTSD symptomology by the PID-5 domains. Previous trauma was controlled for in all multiple regression analyses given its relation with PTSD (Delahanty & Nugent, 2006). Although both samples are highly traumatized, previous research indicates that severity of previous trauma exposure and severity of childhood trauma and maltreatment are independently associated with future risk of PTSD (Frans et al., 2005; Koen et al., 2016); as such we controlled for history of childhood trauma and maltreatment and adult severity of trauma exposure. In Sample 1, we controlled for childhood maltreatment and trauma exposure, and then used the PID-5 domains to predict concurrent PTSD symptom severity as measured by self-report (i.e., PSS) and clinician ratings (i.e., CAPS-5).

In Sample 2, we used the PID-5 domains to predict a series of outcomes. First, controlling for childhood trauma exposure, we used the PID-5 domains to predict self-report PTSD symptom severity 6 months after the participant's PTSD Criterion A trauma occurred (see Tables S2–S4 in the online supplemental materials for bivariate relations between outcomes). Next, we repeated these analyses while also controlling for baseline PTSD symptoms to assess the predictive utility of the PID-5 domains above and beyond existing symptomology. Controlling for childhood trauma exposure and baseline PTSD symptoms, we used the PID-5 domains to predict PTSD symptom severity 6 months after the participant's PTSD Criterion A trauma.

In addition to these regression analyses, we conducted an analogous series of dominance analyses (i.e., one dominance analysis for the final step of each regression model), which were implemented via the yhat package (v. 2.0; Nimon et al., 2013) for RStudio statistical software (v. 0.99.903; R Core Team, 2015). Dominance analyses represent a more complex approach to inves-

Table 2
Descriptive Statistics

Variable	Sample 1		Sample 2—baseline		Sample 2—3 months		Sample 2—6 months	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
PID-5 domains								
Negative Affectivity	6.18	4.44			4.61	3.77		
Detachment	5.39	3.85			4.24	3.55		
Antagonism	1.91	2.25			2.07	2.58		
Disinhibition	3.10	3.06			2.98	3.05		
Psychoticism	4.14	3.70			4.21	3.63		
CAPS-5 total	17.89	13.29						
Re-experiencing	4.08	3.85						
Avoidance	2.45	2.03						
Cognition/Mood	6.45	5.35						
Arousal/Reactivity	5.82	3.94						
PDS total			9.57	10.39				
Re-experiencing			1.88	2.85				
Avoidance			4.01	4.88				
Hyperarousal			3.76	4.09				
PSS total	16.10	12.70			12.01	10.54	11.29	11.03
Re-experiencing	4.04	4.11			2.75	3.31	2.53	3.19
Avoidance	6.29	5.73			4.22	4.47	4.06	4.82
Hyperarousal	5.77	4.37			5.04	4.17	4.69	4.18

Note. PID-5 = Personality Inventory for *DSM–5*; CAPS-5 = Clinician-Administered PTSD Scale for *DSM–5*; PDS = Posttraumatic Stress Diagnostic Scale; PSS = Modified PTSD Symptom Scale for *DSM–IV*; *DSM–5* = *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; PTSD = posttraumatic stress disorder; *DSM–IV* = *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.

tigating the relative predictive value among a set of predictor variables that is useful in the presence of multicollinearity (Budescu, 1993; Chester & DeWall, 2018; Kraha et al., 2012). Dominance analyses yielded a weight estimate for each predictor that represents relative predictor dominance, which is the average contribution of each predictor variable across all possible iterations of predictor combinations for the model. In the multiple regression analyses, a set number of predictors (e.g., β1 + β2 + β3, etc.) were entered simultaneously into a single model which yielded estimates (i.e., β) of how much variance in the dependent variable each predictor accounts for after shared variance with each of the other predictors has been removed. In contrast, dominance analysis involves computing all possible combinations of predictors (e.g., β1 + β2; β1 + β2 + β3; β1 + β3, etc.), and then averaging the amount of variance in the dependent variable each predictor accounts for across each model where it is included as a predictor. This average is called a general dominance weight (GDW; i.e., mean semipartial correlation across all possible permutations of predictors), and a predictor is dominant when its GDW is larger than that of all other predictors within that set. In addition to providing GDWs, we divided these GDWs by the R^2 value from the corresponding multiple regression analysis to estimate the percentage of outcome variance that is captured by each predictor. For example, if the R^2 value from a multiple regression analysis = .100 and a predictor's GDW = .050, then that predictor captures 50% of the variance in that analysis. Finally, research suggests that PTSD symptom clusters demonstrate differential associations with psychological symptoms and traits (Gootzeit & Markon, 2011). As such, we repeated all of the analyses above using the PID-5 domains to predict PTSD symptom clusters (see Tables S5–S12 in the online supplemental materials).

Results

Cross-Sectional Relations Between PID-5 Domains and PTSD Symptoms (Sample 1)

Bivariate Correlations

We first examined cross-sectional bivariate correlations between PID-5 domain scores and self-reported total PTSD symptom severity and PTSD symptom clusters. A *p* value of .05 was used to determine statistical significance. PID-5 domain scores manifested significant positive correlations with total PTSD symptom severity and PTSD *DSM–IV* symptom clusters (see Table 3; effect sizes ranging from small to large), including reexperiencing symptoms, avoidance symptoms, and hyperarousal. Bivariate correlations with PTSD overall symptom severity ranged from r = .18 (Antagonism) to r = .52 (Negative Affectivity), with a median of r = .44 (Detachment). Next, we examined cross-sectional, bivariate correlations between PID-5 domain scores and clinician-assessed PTSD (see Table 4). Similar to the pattern observed with self-reported symptoms, all PID-5 domains evinced significant correlations with total CAPS-5 severity, as well as with each of the symptom clusters. Bivariate correlations with total CAPS-5 severity demonstrated mostly medium to large effect sizes and ranged from r = .25 (Antagonism) to r = .58 (Negative Affectivity), with a median of r = .49 (Detachment). In general, the pattern of personality–PTSD relations were quite similar irrespective of whether self or clinician-based PTSD scores were used.

Multiple Regression Analyses

Next, we conducted regression analyses predicting total PTSD symptoms severity from PID-5 BF domains concurrently

Table 3
Bivariate Relations Between PID-5 Domains and PSS PTSD Symptom Clusters by Self-Report in Sample 1

Variable	PSS PTSD symptom clusters			
	Total	Re-experiencing	Avoidance	Hyperarousal
PID-5 domains				
Negative Affectivity	.52**	.42**	.43**	.54**
Detachment	.44**	.32**	.41**	.42**
Antagonism	.18**	.15**	.13**	.22**
Disinhibition	.34**	.29**	.29**	.35**
Psychoticism	.45**	.38**	.38**	.44**

Note. $N = 490$; PID-5 = Personality Inventory for *DSM–5*; PSS = Modified PTSD Symptom Scale for *DSM–IV*; PTSD = posttraumatic stress disorder; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; *DSM–IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.
** $p < .01$.

assessed (see Table 5). We used self-reported PTSD symptoms (PSS total) and clinical interview (CAPS-5 total severity score) as the outcomes of interest. In these analyses, we controlled for childhood maltreatment and nonchild maltreatment trauma exposure.[1] First, we examined self-reported PTSD symptoms as the dependent variable. At the first step, both trauma exposure predictors (βs = .30 and .28, respectively) and the overall model ($R^2 = .24$) were significant. At the second step, all five PID-5 dimensions were also entered as predictors. The change in R-squared was significant ($\Delta R^2 = .15$) and Negative Affectivity, Detachment, and Psychoticism were significant predictors (β = .29, .11, .14, respectively). Next, we examined clinician-rated PTSD symptoms as the dependent variable. At the first step, both trauma exposure predictors (βs = .36 and .29, respectively) and the overall model ($R^2 = .30$) were significant. At the second step, all five PID-5 domains were also entered as predictors. The change in R-squared was significant ($\Delta R^2 = .20$), and Negative Affectivity, Detachment, and Psychoticism were significant predictors (β = .30, .11, .14, respectively).

Dominance Analyses

The GDW and the percentage of model R^2 (% R^2) captured by each predictor in the Sample 1 regression models can be found in Table 5. When predicting self-reported PTSD symptoms, Negative Affectivity was the most dominant trait predictor (GDW = .10, % R^2 = 26.3%). The next most dominant trait predictors were Psychoticism (GDW = .06, % R^2 = 15.3%) and Detachment (GDW = .05, % R^2 = 13.9%), which were comparably dominant to nonchildhood maltreatment trauma (GDW = .08, % R^2 = 19.9%) and childhood maltreatment (GDW = .06, % R^2 = 16.1%). A similar pattern was observed for clinician-rated PTSD symptoms. Negative Affectivity (GDW = .12, % R^2 = 24.8%), Psychoticism (GDW = .07, % R^2 = 14.4%), and Detachment (GDW = .07, % R^2 = 13.5%) were the most dominant trait predictors, whereas nonchildhood maltreatment trauma (GDW = .11, % R^2 = 21.6%) and childhood maltreatment (GDW = .07, % R^2 = 14.9%) were also comparably dominant predictors.

Relations Between PID-5 Domains and PTSD Symptoms 6 Months Following Traumatic Event (Sample 2)

Bivariate Correlations

Next, we examined bivariate correlations between PID-5 domain scores assessed 3 months following the PTSD Criterion A trauma and total self-report PTSD symptom severity and PTSD symptom clusters assessed 6 months following the PTSD Criterion A trauma in Sample 2 (see Table 6). In Sample 2, all five PID-5 domain scores manifested significant positive correlations with 6-month total PTSD symptom severity and PTSD symptom clusters (effect sizes ranging from small to large), including reexperiencing symptoms, avoidance symptoms, and hyperarousal symptoms. Bivariate correlations with PTSD overall symptom severity 6 months following traumatic event ranged from $r = .20$ (Antagonism) to $r = .51$ (Psychoticism), with a median of $r = .40$ (Detachment).

Multiple Regression Analyses

Next, we examined concurrent 3-month follow-up self-reported PTSD symptoms as the dependent variable (see Table 7). At the first step, childhood trauma was entered as predictor; this predictor and overall model were not significant. At the second step, all five PID-5 dimensions were also entered as predictors. The change in R^2 was significant ($\Delta R^2 = .30$), and Negative Affectivity, Disinhibition, and Psychoticism were significant predictors (β = .38, −.22, and .33, respectively). We also investigated the same model while also controlling for baseline PTSD symptom severity. At the first step, baseline

[1] All relevant analyses included in the manuscript (i.e., analyses presented in Table 5, 7, 8, and 9) were run without controlling for childhood trauma, and this did not have an impact on study findings in terms of statistical significance and magnitude and direction of effect size: Negative Affectivity, Detachment, and Psychoticism emerged as significant predictors of concurrent PTSD in Sample 1 and Sample 2 (both with and without additionally controlling for childhood trauma), and Negative Affectivity and Psychoticism emerged as significant predictors of prospective PTSD in Sample 2 (both with and without additionally controlling for childhood trauma).

Table 4
PID-5 Domains Associations With PTSD Total Symptom Severity and Symptom Clusters by Semi-Structured Clinical Assessment From Sample 1

Variable	CAPS-5 PTSD symptom clusters				
	Severity	Intrusion	Avoidance	Cog./Mood	Arousal/React.
PID-5 domains					
Negative Affectivity	.58**	.42**	.40**	.55**	.57**
Detachment	.49**	.37**	.38**	.47**	.45**
Antagonism	.25**	.17**	.20**	.23**	.23**
Disinhibition	.41**	.31**	.27**	.37**	.39**
Psychoticism	.50**	.41**	.39**	.45**	.47**

Note. $N = 490$; PID-5 = Personality Inventory for *DSM–5*; PTSD = posttraumatic stress disorder; CAPS-5 = Clinician-Administered PTSD Scale for *DSM–5*; Cog./Mood = Cognition and Mood; Arousal/React. = Arousal and Reactivity; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*.
** $p < .01$.

PTSD symptom severity was a significant predictor (β = .43) and overall model was significant ($R^2 = .17$). At the second step, all five PID-5 dimensions were also entered as predictors. The change in R-squared was significant ($\Delta R^2 = .21$), and Negative Affectivity, Disinhibition, and Psychoticism were significant predictors (β = .34, −.21, and .29, respectively). In both of these models, we observed a suppression effect, such that the relation between Disinhibition and concurrent, self-report PTSD: The significant positive bivariate relation changed to a significant negative relation when entered simultaneously with the other predictors.

We used regression analyses to investigate the relation of all five PID-5 domains with self-report PTSD total symptom severity, when controlling for childhood trauma exposure (see Table 8). In the first model predicting total PTSD severity, childhood maltreatment was entered in the first step and was not a significant predictor. At the second step, all five PID-5 domains were added as predictors. The change in R-squared was significant ($\Delta R^2 = .25$), and Negative Affectivity and Psychoticism were significant predictors (β = .24 and .30, respectively).

Finally, we repeated these analyses while also controlling for baseline PTSD symptoms (see Table 9). In the first model pre-

Table 5
PID-5 Domains Predicting Concurrent PTSD Symptoms in Sample 1

Variable	R^2	*B*	*SE*	β	GDW (% R^2)
PSS total					
Step 1	.24**				
TEI		1.59	.24	.30**	
CTQ		.19	.03	.28**	
Step 2 (ΔR^2)	.15**				
TEI					.08 (19.9)
CTQ					.06 (16.1)
Negative Affectivity		.82	.15	.29**	.10 (26.3)
Detachment		.36	.17	.11*	.05 (13.9)
Antagonism		−.37	.23	−.07	.01 (1.8)
Disinhibition		−.15	.20	−.04	.03 (6.5)
Psychoticism		.47	.18	.14**	.06 (15.3)
CAPS-5 severity					
Step 1	.30**				
TEI		.10	.01	.36**	
CTQ		.01	<.01	.29**	
Step 2 (ΔR^2)	.20**				
TEI					.11 (21.6)
CTQ					.07 (14.9)
Negative Affectivity		.04	.01	.30**	.12 (24.8)
Detachment		.02	.01	.11*	.07 (13.5)
Antagonism		−.01	.01	−.02	.01 (2.3)
Disinhibition		<.01	.01	<.01	.04 (7.8)
Psychoticism		.03	.01	.14*	.07 (14.4)

Note. PID-5 = Personality Inventory for *DSM–5*; PTSD = posttraumatic stress disorder; GDW = general dominance weight; % R^2 = percentage of total model R^2 accounted for by a given predictor; PSS = Modified PTSD Symptom Scale for *DSM–IV*; TEI = Traumatic Events Inventory; CTQ = Childhood Trauma Questionnaire; CAPS-5 = Clinician-Administered PTSD Scale for *DSM–5*; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; *DSM–IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.
* $p < .05$. ** $p < .01$.

Table 6
PID-5 Domains Associations With 3-Month and 6-Month PTSD Total Score and Symptom Clusters From Sample 2

Variable	PSS PTSD symptom clusters			
	Total	Re-experiencing	Avoidance	Hyperarousal
PID-5 domains				
Negative Affectivity	.50**/.49**	.43**/.43**	.39**/.45**	.47**/.42**
Detachment	.40**/.40**	.27**/.25**	.42**/.43**	.32**/.34**
Antagonism	.11/.20**	.06/.10	.09/.24**	.13/.17*
Disinhibition	.15*/.29**	.10/.18*	.11/.30**	.16*/.25**
Psychoticism	.48**/.51**	.36**/.37**	.44**/.50**	.43**/.46**

Note. $N = 185$. Correlations are presented for 3-month/6-month PSS score. PID-5 = Personality Inventory for *DSM–5*; PTSD = posttraumatic stress disorder; PSS = Modified PTSD Symptom Scale for *DSM–IV*; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; *DSM–IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.
* $p < .05$. ** $p < .01$.

dicting self-report PSTD total symptom severity, childhood trauma and baseline PTSD symptoms were entered in the first step, and baseline PTSD symptoms emerged as a significant predictor (β = .43; $R^2 = .18$). At the second step, the PID-5 domains were also entered as predictors. The change in R-squared was significant ($\Delta R^2 = .14$), and Negative Affectivity (β = .19) and Psychoticism (β = .26) emerged as significant predictors.

Dominance Analyses

The GDW and the percentage of model R^2 (% R^2) captured by each predictor in the Sample 2 regression models can be found in Tables 7, 8, and 9. When predicting concurrent self-report PTSD total symptom severity, Negative Affectivity (GDW = .13, $\%R^2$ = 41.8%) and Psychoticism (GDW = .11, $\%R^2$ = 34.4%) were the most dominant trait-level predictors. When baseline PTSD was included as a predictor, it exhibited comparable, but less dominance as these trait predictors (GDW = .10, $\%R^2$ = 25.2%). Similarly, when predicting prospective PTSD symptoms, Psychoticism (GDW = .10, $\%R^2$ = 37.2%) and Negative Affectivity (GDW = .08, $\%R^2$ = 31.2%) again emerged as the most dominant trait predictors. After baseline PTSD was included as a predictor, it became the most dominant predictor (GDW = .09, $\%R^2$ = 29.3%) over the trait predictors.

Discussion

The goal of the current study was to examine the relations between *DSM–5* AMPD model personality traits and PTSD. The present study focused on relevant and underrepresented samples, with a low socioeconomic status, primarily African American

Table 7
PID-5 Domains Predicting Concurrent PTSD Symptoms at 3 Months in Sample 2 With and Without Controlling for Baseline PTSD Symptom Severity

Variable	R^2	*B*	*SE*	β	GDW (% R^2)
Step 1	.01				
CTQ		.05	.04	.10	
Step 2 (ΔR^2)	.30**				
CTQ					<.01 (0.7)
Negative Affectivity		.93	.20	.38**	.13 (41.8)
Detachment		.22	.21	.09	.05 (15.7)
Antagonism		−.39	.25	−.11	.01 (2.6)
Disinhibition		−.64	.23	−.22**	.02 (5.9)
Psychoticism		.86	.21	.33**	.11 (34.4)
Step 1	.17**				
CTQ		−.03	.04	−.05	
PTSD baseline		.42	.07	.43**	
Step 2 (ΔR^2)	.21**				
CTQ					<.01 (0.8)
PTSD baseline					.10 (25.2)
Negative Affectivity		.86	.20	.34**	.12 (31.6)
Detachment		.15	.20	.06	.04 (11.3)
Antagonism		−.30	.24	−.09	.01 (1.8)
Disinhibition		−.63	.22	−.21**	.02 (4.8)
Psychoticism		.75	.20	.29**	.10 (25.4)

Note. PID-5 = Personality Inventory for *DSM–5*; PTSD = posttraumatic stress disorder; GDW = general dominance weight; % R^2 = percentage of total model R^2 accounted for by a given predictor; CTQ = Childhood Trauma Questionnaire; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*.
** $p < .01$.

Table 8

PID-5 Domains Prospectively Predicting PTSD Symptom Severity at 6-month Follow-Up in Sample 2

PSS total	R^2	*B*	*SE*	β	GDW (% R^2)
Step 1	.02				
CTQ		.08	.04	.14	
Step 2 (ΔR^2)	.25**				
CTQ					.01 (2.0)
Negative Affectivity		.62	.23	.24**	.08 (31.2)
Detachment		.26	.23	.10	.05 (18.3)
Antagonism		−.16	.29	−.04	.01 (4.1)
Disinhibition		−.04	.27	−.01	.02 (7.7)
Psychoticism		.82	.24	.30**	.10 (37.2)

Note. PID-5 = Personality Inventory for *DSM–5*; PTSD = posttraumatic stress disorder; GDW = general dominance weight; % R^2 = percentage of total model R^2 accounted for by a given predictor; PSS = Modified PTSD Symptom Scale for *DSM–IV*; CTQ = Childhood Trauma Questionnaire; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; *DSM–IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.

** $p < .01$.

sample with high rates of trauma history and a majority African American prospective sample interviewed within hours of experiencing a PTSD Criterion A trauma. Little research has investigated PTSD and personality in communities of color, despite African Americans having elevated PTSD risk and experiencing higher rates of exposure to traumatic events compared with other ethnic/racial groups in the United States (Alegría et al., 2013) and associated impact on functional outcomes (e.g., physical health; Carter et al., 2020; substance use; Davis et al., 2014).

We hypothesized that Negative Affectivity, Detachment, and Disinhibition would be positively associated with concurrent PTSD symptom severity at the bivariate level; results indicate that all PID-5 domains, including these domains as well as Antagonism and Psychoticism, demonstrated positive associations with PTSD symptoms. Notably, Negative Affectivity and Psychoticism demonstrated the strongest associations with mostly large effect sizes across self-report (r = .52 and .45, respectively) and clinical interview (r = .58 and .50, respectively) in Sample 1 and with PTSD concurrently (r = .50 and .48, respectively) as well as at 6 months (r = .49 and .51, respectively) in Sample 2. Negative Affectivity being the primary personality traits associated with PTSD risk is consistent with previous research using other personality trait models (Miller, 2003; Miller et al., 2012).This is also consistent with broader work indicating the role of Neuroticism/Negative Affectivity in risk for internalizing and externalizing psychiatric disorders (Khan et al., 2005).

The current data suggest some inconsistencies between the FFM and the PID-5 domains in terms of their relations to PTSD. The strong bivariate association between Psychoticism and PTSD was unexpected based on the FFM literature; a meta-analysis of studies investigating FFM and PTSD did not find an association between PTSD and trait Openness (Kotov et al., 2010). Additionally, although low levels of FFM Extraversion display somewhat inconsistent relations with PTSD (Miller, 2003), the current results

Table 9

PID-5 Domains Prospectively Predicting PTSD Symptom Severity at 6-Month Follow-Up in Sample 2 While Controlling for Baseline PTSD

PSS total	R^2	*B*	*SE*	β	GDW (% R^2)
Step 1	.18**				
CTQ		−.02	.04	−.03	
PTSD baseline		.44	.08	.43**	
Step 2 (ΔR^2)	.14**				
CTQ					<.01 (1.5)
PTSD baseline					.09 (29.3)
Negative Affectivity		.50	.23	.19*	.07 (22.1)
Detachment		.19	.23	.07	.04 (12.9)
Antagonism		−.14	.29	−.04	.01 (3.1)
Disinhibition		−.07	.26	−.02	.02 (5.2)
Psychoticism		.71	.24	.26**	.09 (27.0)

Note. PID-5 = Personality Inventory for *DSM–5*; PTSD = posttraumatic stress disorder; GDW = general dominance weight; % R^2 = percentage of total model R^2 accounted for by a given predictor; PSS = Modified PTSD Symptom Scale for *DSM–IV*; CTQ = Childhood Trauma Questionnaire; *DSM–5 = Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; DSM–IV = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.

* $p < .05$. ** $p < .01$.

suggest that at the bivariate level, Detachment displays medium, positive relations to concurrent PTSD symptoms. These findings are consistent with previous findings that PID-5 Detachment and Psychoticism (James et al., 2015) and Negative Affectivity (Waszczuk et al., 2018) are associated with concurrent PTSD symptoms in veterans and first responders, respectively.

In a multiple regression framework, Negative Affectivity and Psychoticism were significant predictors of PTSD symptom severity in both samples, including for self-report and clinician-administered measures, and at concurrent and prospective timepoints. This same finding was observed while controlling for earlier trauma exposure and baseline PTSD symptom severity, and the other AMPD traits were less consistent predictors. This pattern was corroborated by the dominance analyses. Negative Affectivity and Psychoticism were almost always the most dominant predictors of PTSD symptom severity. In analyses prospectively predicting total PTSD symptom severity 6 months following the PTSD Criterion A trauma, Negative Affectivity and Psychoticism were significant predictors of total PTSD severity. Of note, these domains were significant predictors of PTSD symptom severity even after controlling for lifetime trauma exposure and baseline PTSD symptoms, suggesting that these traits predicted meaningful variance in PTSD above and beyond what may be expected from considering previous lifetime experiences of trauma alone. PID-5 Negative Affectivity being a consistent and dominant predictor of PTSD symptom severity is consistent with previous research using normal trait models, which consistently suggest that Neuroticism/Negative Affectivity posttrauma is associated with PTSD risk following a traumatic event (Bennett et al., 2002; Fauerbach et al., 2000; Holeva & Tarrier, 2001; McFarlane, 1992). Tendencies toward negative emotionality (as indexed by either trait Neuroticism or Negative Affectivity) may act as both a risk factor for the onset and maintenance of symptoms of PTSD. This is consistent with theoretical models that link Neuroticism/Negative Affectivity to PTSD symptoms (i.e., Hierarchical Taxonomy of Psychopathology; Kotov et al., 2017; Miller, 2003) and adds to the existing evidence base that Neuroticism/Negative Affectivity is related to a wide range of psychopathology, especially internalizing disorders (Kotov et al., 2010).

Although the *DSM–5* traits are stated to be "maladaptive variants of the five domains of the extensively validated and replicated model known as the 'Big Five' or the FFM model of personality" (American Psychiatric Association, 2013, p. 773), it is important for research to empirically investigate how these traits are associated with relevant mental health outcomes, and how these associations may be consistent or differ from FFM associations. PID-5 Psychoticism emerging as a consistent and dominant predictor was somewhat unexpected. A previous study measured FFM at hospital discharge in civilian trauma survivors and found that Neuroticism and Extraversion, and not Openness (of which PID-5 Psychoticism is a maladaptive variant) predicted later PTSD symptom severity (Fauerbach et al., 2000). However, in a study 2–4 weeks following traffic accident, Neuroticism and Psychoticism, but not Extraversion, as measured via the Eysenck Personality Questionnaire significantly predicted PTSD 4–6 months posttrauma (Holeva & Tarrier, 2001). The present findings are consistent with the two previous cross-sectional studies that found PID-5 Psychoticism to be associated with PTSD (James et al., 2015; Waszczuk et al., 2018). Psychoticism and Openness are the least commensurate of the FFM and PID-5 trait pairs, and there is some disagreement as to whether Openness has a maladaptive variant (Gore & Widiger, 2013). PTSD can be associated with dissociative symptoms, characterized by disruptions in identity, memory, and perceptions (Powers et al., 2015). Although PID-5 Psychoticism was intended to capture cognitive-perceptual aberrations, unusual beliefs and experiences, and eccentricity associated with schizotypal personality disorder, some items explicitly assess dissociation symptoms (e.g., "I have periods in which I feel disconnected from the world or from myself"; "I often 'zone out' and then suddenly come to and realize that a lot of time has passed"); therefore, it is possible that PID-5 Psychoticism may better align with dissociative features of PTSD than FFM Openness. Future research could benefit from assessing dissociative symptoms and experiences when further investigating the relations between PID-5 domains and PTSD.

Psychoticism emerging across samples as a significant predictor of PTSD severity may also reflect the psychometric properties of this scale, including potentially problematic discriminant validity and less relation with its purported FFM counterpart of trait Openness. PID-5 has shown relatively weaker convergent validity with FFM Openness compared with other PID-5 domains and their corresponding FFM traits (Crego et al., 2015). In terms of discriminant validity, cross-domain correlations were consistently highest for Psychoticism and the other scales, indicating more limited discriminant validity (Crego et al., 2015). Although this could be at least partially related to the PID-5 representing maladaptive traits, the average discriminant validity of the PID-5 traits has been shown to be worse than other maladaptive trait models (Crego & Widiger, 2020). The maladaptive nature of trait Detachment may also be a factor in why this trait was associated with PTSD, whereas previous research did not find an association with FFM trait Extraversion and PTSD, as Detachment is maladaptive and may better reflect internalizing psychopathology than trait Extraversion.

Across study analyses, one significant suppression effect was identified, such that Disinhibition was positively associated with PTSD symptom severity at the bivariate level ($r = .15$) but in the regression models predicting PTSD symptom severity concurrently was a negative predictor ($\beta = -.22$; Table 7). The PID-5 domains all share a common core of impairment/severity, leading to their substantial intercorrelations (Hyatt et al., 2020; Table S3 in the online supplemental materials). As such, we included dominance analyses, as they are optimal for interpreting multiple regression when dealing with multicollinearity (Kraha et al., 2012), and are particularly useful for detecting and interpreting cases of suppression (Azen & Budescu, 2003). This suppression effect seems primarily driven by inclusion of Negative Affectivity or Psychoticism domains, consistent with dominance analyses identifying these domains as the dominant predictors across almost regression analyses predicting PTSD symptom severity, and specifically in the analyses in which the suppression effect emerges. For example, Negative Affectivity and Psychoticism captured 41.8% and 34.4%, respectively, of the model R^2, whereas Disinhibition captured only 5.9% (see Table 7).

The current results have potential clinical implications. Multimethod evidence supporting the empirical overlap between personality traits and psychopathology has burgeoned in the past decade (Hyatt et al., 2019; Kotov et al., 2017; Wright & Simms, 2015). A recent meta-analytic review found significant changes in

personality trait measures over an average of 24 weeks of clinical intervention (d = .37); Neuroticism was the primary trait demonstrating changes as a result of intervention (Roberts et al., 2017). Given that many of the trans-theoretical components of psychotherapy are explicitly implemented with the intent of reducing future negative emotional states, these results suggest that personality traits could be incorporated into clinical conceptualization and are consistent with evidence that personality traits are good targets for intervention (Sauer-Zavala et al., 2020). Neuroticism demonstrates consistent associations with physical and mental disorders, quality and longevity of life, and mental and physical health care use (Lahey, 2009). An economic analysis in a large representative Dutch sample found that the per capita excess costs of Neuroticism per million people from the 25% highest scorers on this trait was $1.39 billion, approximately 2.5 times as high as excess costs of common mental disorders (Cuijpers et al., 2010). Some view specific discrete psychological disorders as manifestations of the broader underlying syndrome of Negative Affectivity/Neuroticism and suggest that these personality traits may be more effectively targeted via assessment and therapeutic intervention than symptom-level manifestations of these traits (Barlow, 2002). Indeed, Barlow and colleagues (2014) have advocated that psychotherapeutic treatment of Neuroticism could be guided by existing, trans-diagnostic treatments for emotional problems, (i.e., Unified Protocol [UP]), noting accumulating research evidence suggests that Neuroticism is more malleable than previously believed. Recent work has also provided guidance on how to incorporate the Hierarchical Taxonomy of Psychopathology model, a hierarchical model of psychopathology that incorporates personality traits, into clinical practice (Ruggero et al., 2019). Negative Affectivity and Psychoticism traits could be used to identify individuals at risk for PTSD (Price et al., 2014) and thus, those in need of early intervention approaches, to prevent PTSD development (Maples-Keller et al., 2020).

Future research investigating personality traits and PTSD before and after onset of traumatic event and over a longer span of time than the present 6 months would be enlightening. It is important to research psychiatric risk in historically underresearched and underserved samples, especially given research indicating that psychiatric risk factors may differ across racial groups (Salami et al., 2017). Future research can test if these findings generalize. The elevated rates of PTSD in this African American community sample are consistent with previous research (Alegría et al., 2013) and suggest the importance of efforts to develop culturally tailored evidence-based trauma treatments (Metzger et al., 2020). Personality traits can be inexpensively and quickly screened after trauma exposure to assess for risk of developing PTSD. The PID-5-BF offers a succinct measure of pathological traits, and previous research provides evidence support for its psychometric properties, as it demonstrates appropriate reliability, factor structure, and expected relations with external criterion variables (Anderson et al., 2018). The PID-5 has also been shown to demonstrate a comparable pattern of correlations with external criterion measures with the full-length PID-5 (Anderson et al., 2018). Slightly longer measures, such as the FFM (e.g., IPIP-NEO 60; Maples-Keller et al., 2019) or the 100-item (Maples et al., 2015) or full length PID-5, allow researchers to capture both domains and facets that may prove of particular use when attempting to bridge levels of measurement, such as linking personality traits to cognitive or physiological processes (DeYoung, 2015). The Structured Clinical Interview for the *DSM–5* AMPD (Skodol et al., 2018) Module for Personality Traits is a semistructured interview for clinicians and would be fruitful to use in future research on this model and PTSD. Future work should investigate specific mechanisms for how personality traits confer risk for different manifestations of PTSD. Given the substantial utility of personality in predicting many life outcomes (Soto, 2019), research on PTSD and personality holds promise for uncovering a more basic understanding of these constructs and potential for improving clinical interventions.

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