

ASSOCIATION OF PERSONALITY FACETS WITH UNIQUE DIMENSIONS OF PTSD

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The present study aims to examine which maladaptive and Big Five personality traits, as well as which lower order facets, are related to symptoms specific to PTSD (i.e., intrusions and avoidance). Unique effects were isolated by controlling for nonspecific general depression that occurs in the disorder but is not specific to it. 707 undergraduate students were administered a self-report online survey to assess their personality, trauma history, PTSD and mood symptoms. Additionally, data from 536 9/11 World Trade Center (WTC) responders who have been administered personality, PTSD, and mood surveys as part of a longitudinal study were analyzed. As expected, neuroticism was highly correlated with PTSD, but had fewer associations with PTSD dimensions after controlling for depression. Trust and agreeableness emerged as important, being negatively related to PTSD, while most maladaptive personality domains and facets were positively related to PTSD (perceptual dysregulation had the highest association). Other traits, such as antagonism and openness, were not significantly related to PTSD. There is growing evidence that clinical interventions can change personality traits; the present study provides new personality targets for intervention that are uniquely related to PTSD.

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## CHAPTER 1

### INTRODUCTION

#### Negative Consequences of PTSD

Posttraumatic stress disorder (PTSD) is a significant public health issue. In a United States national survey of the general adult population, 89% of respondents endorsed having experienced at least one trauma in their life, and 9.8% met criteria for a lifetime PTSD diagnosis (Kilpatrick et al., 2013). PTSD is a debilitating disorder and has been associated with outcomes such as poor physical and mental health and reduced quality of life. For example, a recent meta-analysis including both longitudinal cross-sectional studies with community, clinical, and mixed samples, found that PTSD symptoms were associated with more general physical health problems, medical conditions, cardio-respiratory symptoms, a lower physical health-related quality of life, and a higher frequency and severity of musculoskeletal pain (Pacella, Hruska, & Delahanty, 2013). Another review of 60 studies, consisting of treatment-seeking and community samples, indicated that PTSD was strongly associated with cognitive deficits, including verbal learning, information processing speed, working memory, and verbal memory (Scott et al., 2015).

Other meta-analyses and reviews have studied the mental health impact of trauma exposure. One review found that, across retrospective, and cross-sectional and longitudinal studies, childhood trauma exposure was linked with greater risk of depression, substance use, suicide attempts, sexually transmitted infections, and risky sexual behavior (Norman, Byambaa, De, Butchart, Scott, & Vos, 2012). Thus, severe mental health consequences can arise from exposure to a traumatic event.

A recent meta-analysis examined personality as a risk factor for PTSD using longitudinal

studies (DiGangi, Gomez, Mendoza, Jason, Keys, & Koenen, 2013). Six studies linked negative affect/neuroticism to PTSD, and two studies linked hostility to PTSD. Other findings (each examined by just one study) included a significant relationship between trait anger, trait anxiety, harm avoidance, and trait dissociation. Effect sizes for personality ranged from  $r^2 = .02 - .42$  (mean  $r^2 = .13$ ), while effect sizes for other risk factors ranged from  $r^2 = .01 - .34$  (mean  $r^2 = .18$ ).

The following sections will describe findings in the literature regarding the associations between personality and PTSD. A brief history of personality theory will be presented, followed by a description of common models of personality used in current research. Next, the literature on the personality traits associated with PTSD as a unitary disorder will be reviewed. The competing models of the structure of PTSD will be discussed. A review of the emerging literature on personality associations with specific PTSD symptoms (intrusions, avoidance, negative alterations in cognition and mood, and hyperarousal) will follow. Gaps in the current literature understanding personality relations with PTSD will be discussed, as well as how the current study seeks to address these gaps. Finally, a brief summary will be provided to review the research regarding personality and PTSD symptoms.

### Review of Personality Theory and PID-5

The study of personality has had a long and rich history. While there are varying definitions of personality, the scientific community generally agrees that personality is “the dynamic and organized set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations, and behaviors in various situations” (Ryckman, 2012). Personality traits have been found to be consistent across cultures (McCrae & Terracciano,



2005). Personality studies emerged from factor analyses of personality-related terms in the English dictionary in the late 19th century (Goldberg, 1993). There is general consensus that personality is organized into a hierarchical structure, with several broad traits that each contain numerous facets (Goldberg, 1993; Markon, Krueger, & Watson, 2005). One of the first researchers to organize common personality terms into groups was L.L. Thurstone. He used factor analysis to cluster 60 words that described human personality traits, into five groups, or factors (Thurstone, 1934). Other major researchers who were influential in personality theory development included Raymond B. Cattell, who found twelve factors, only five of which were replicated in further research; and Costa and McCrae, who first developed the NEO-Personality Inventory in 1985, which started out as a measure of three personality factors (Cattell, 1947; Costa & McCrae, 1985).

Presently, there are multiple models of personality, the major ones being the Big Three (Eysenck & Eysenck, 1985) and the Big Five (Goldberg, 1993; John & Srivastava, 1999; McCrae et al., 2000). The Big Three personality traits include psychoticism, extraversion, and neuroticism. Currently, the five-factor model of personality is often used to study personality. This model consists of five higher-order personality domains: openness to experience (imaginative, independent-minded), conscientiousness (orderly, dependable, goal-oriented), extraversion (talkative, energetic, positive emotionality), agreeableness (good-natured, cooperative), and neuroticism (easily upset, tendency to experience negative emotions). Each domain is composed of various facets; for example, in the NEO-PI-R, a commonly used measure in personality research, extraversion is composed of facets of gregariousness, assertiveness, activity, excitement-seeking, positive emotions, and warmth (John & Srivastava, 1999; Costa & McCrae, 1992).

More recently, theories and measures of maladaptive personality domains and facets have been proposed. For instance, the DSM-5 includes an alternative, dimensional assessment of maladaptive personality traits based on an empirically derived model in Section III, Emerging Measures and Models (Krueger & Markon, 2014; American Psychiatric Association, 2013), the Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012). The PID-5 represents a shift from a categorical approach to personality traits and disorders, as seen in previous versions of the DSM, to an empirically-supported dimensional approach (Krueger et al., 2012; Krueger & Markon, 2014; Widiger & Simonsen, 2005). The PID-5 consists of five higher-order domains (negative affect, detachment, antagonism, disinhibition, and psychoticism) and their associated 25 facets. The domains have established reliability (Cronbach's  $\alpha = 0.84 - 0.96$ ), as do the facets (Cronbach's  $\alpha = 0.72 - 0.96$ ) (Krueger et al., 2012).

Research suggests that the PID-5 converges with the Big Three and Big Five personality constructs, and may be conceptualized as pathological variants of these traits (Helle, Trull, Widiger, & Mullins-Sweatt, 2016; Thomas et al., 2012; Wright et al., 2012), although the match is not perfect. Conjoint exploratory factor analyses suggest that the five PID-5 maladaptive personality domains have shown convergence with the Big Five personality traits (Thomas et al., 2012). Specifically, negative affect reflects neuroticism, antagonism mirrors low agreeableness, detachment is parallel to low extraversion, psychoticism reflects openness to experience, and disinhibition is akin to low conscientiousness (Thomas et al., 2012). Additionally, in Thomas and colleagues' (2012) study, the lower-order facets of the PID-5 domains generally displayed convergence with the five-factor traits.

However, there are some discrepancies between PID-5 domains and personality traits. For example, there is evidence suggesting that the openness trait of the NEO-PI-3 does not align well with the psychoticism domain of the PID-5, while the other Big Five traits line up with PID-5 domains as expected (De Fruyt et al., 2013). Furthermore, Watson and colleagues (2013) found that the PID-5 domains of negative affect, disinhibition, and antagonism converge with other measures of neuroticism, conscientiousness, and agreeableness, respectively, but that detachment and psychoticism do not converge as well with the domains of extraversion and openness. The authors suggest that this may be related to the fact that detachment may contain a blend of both neuroticism and introversion, while certain facets of openness (such as fantasy proneness) may converge better with psychoticism than others. This underscores the utility of examining personality traits at a facet level. Overall, research on PID-5 and measures of Big Five personality traits suggests the potential for maladaptive and normative personality traits to be synthesized into a personality spectrum, which could help psychologists better understand the relationship between personality and psychopathology.

### Personality Associations with PTSD

Numerous personality traits have been associated with psychopathology, such as depressive, anxiety, personality, substance use disorders, and PTSD (Kotov et al., 2010; Malouff, Thorsteinsson, & Schutte, 2005; Miller, 2003). For instance, high neuroticism and low extraversion have been linked to social avoidance, anxiety, and depression; high neuroticism and low conscientiousness have been associated with impulsivity, aggression, antisociality, and substance abuse (Miller, 2003). Furthermore, all diagnostic categories (depressive, anxiety, and substance use) in a meta-analysis by Kotov and colleagues (2010) were associated with high

neuroticism and low conscientiousness; many disorders were also associated with low extraversion, and some were associated with disinhibition. Agreeableness was negatively linked to substance use disorders (SUD), and positively associated with agoraphobia and specific phobia. Openness to experience was negatively associated with dysthymic disorder and agoraphobia. In the aforementioned review, SUD was positively correlated with disinhibition and negatively with conscientiousness, and dysthymic disorder and social phobia showed the strongest (negative) associations with extraversion.

PTSD has also been shown to have significant associations with personality traits. In a recent review, traits such as neuroticism, trait hostility and anger, trait anxiety, harm avoidance, self-transcendence, and novelty-seeking were linked with PTSD (Jaksic et al., 2012). Moreover, this review found that personality traits of extraversion, conscientiousness, hardiness, and optimism were negatively associated with PTSD symptoms. Another recent meta-analysis of personality and psychopathology had similar findings, indicating that neuroticism was positively linked with PTSD, while conscientiousness and extraversion were both negatively associated with PTSD (Kotov et al., 2010).

#### *Longitudinal and Prospective studies*

Many studies have found a positive correlation between neuroticism and PTSD. In a prospective study of Dutch male veterans whose personality was assessed pre-deployment, negativism, somatization, and psychoticism were significantly correlated with PTSD symptom severity after deployment (Bramsen, Dirkzwager, & van der Ploeg, 2000). Another study found that veterans who had scored higher on measures of neuroticism prior to deployment were more likely to develop combat-related PTSD (O'Toole et al., 1998). Neuroticism assessed in women

pre-trauma (pregnancy loss) predicted PTSD symptoms (Engelhard, van den Hout, & Kindt, 2003). Furthermore, both neuroticism and psychoticism measured less than one month after a motor vehicle accident was associated with a PTSD diagnosis four to six months later, controlling for variables of accident severity, previous accident history, peritraumatic dissociation, and presence of acute stress disorder (Holeva & Tarrier, 2001). Other longitudinal studies suggest an association between neuroticism and PTSD in forest fire survivors (Parslow, Jorm, & Christensen, 2006) and burn victims (Lawrence & Fauerbach, 2003).

In a longitudinal study done with students who experienced a terrorist attack, harm avoidance (a tendency to avoid novelty, punishment, and situations that are not rewarding) was associated with risk for PTSD; however, novelty-seeking, a predisposition to experience excitement to novel stimuli, was negatively associated with PTSD development (Gil, 2005).

### *Cross-Sectional Studies*

Like the prospective and longitudinal studies above, many cross-sectional studies have also discovered that high neuroticism was associated with PTSD in various samples, such as Holocaust survivors (Brodaty, Joffe, Luscombe, & Thompson, 2004), college students (Wu, Yin, Xu, & Zhao, 2011; Lauterbach & Vrana, 2001), firefighters (McFarlane, 1989), and combat veterans (Casella & Motta, 1990; Hyer et al., 1994). Therefore, research suggests that various personality traits are linked with PTSD development, with neuroticism emerging as a consistent variable that is positively associated with the disorder.

Neuroticism has also been linked with other forms of psychopathology, particularly anxiety and unipolar mood disorders such as depression (Krueger, McGue, & Iacono, 2001; Clark & Watson, 1991). For instance, individuals with diagnoses of anxiety and/or major

depression score significantly higher on measures of neuroticism (Trull & Sher, 1994; Bienvenu, Samuels, Costa, Reti, Eaton, & Nestadt, 2004), and neuroticism has been shown to be a predictor of panic attacks as well (Hayward, Killen, Kraemer, & Taylor, 2000). PTSD is highly comorbid and shares overlap with major depression and anxiety disorders (Breslau, Davis, Andreski, & Peterson, 1991). Thus, neuroticism may serve as a latent personality trait that increases individuals' vulnerability to anxiety and mood disorders generally, including but not limited to PTSD. Though personality traits have traditionally been thought to be stable across the life course (Costa & McCrae, 1988; Soldz & Vaillant, 1999), some researchers even propose that trauma exposure may alter personality, such as by increasing negative affect post-trauma, or it "accentuates pathogenic traits present in the pretrauma personality" (Miller, 2003). Current research also suggests that some personality traits, such as neuroticism, are amenable to change via therapeutic intervention (Boisseau, Farchione, Fairholme, Ellard, & Barlow, 2010; Roberts, Luo, Chow, Su, & Hill, 2017), countering the long-standing assumption that personality traits are stable. The high prevalence of trauma history in individuals with personality disorders may be in line with this idea that personality traits are not static throughout one's lifetime (Barrett, Resnick, Foy, Dansky, Flanders, & Stroup, 1996; Ellason, Ross, Sainton, & Mayran, 1996; Herman, Perry, & van der Kolk, 1989; Luntz & Widom, 1994); for example, there is a high prevalence of childhood trauma in individuals with borderline personality disorder (e.g., Herman et al., 1989; Ellason et al., 1996).

To examine the differences in maladaptive personality traits in veterans with and without PTSD, James and colleagues (2015) examined scores on the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012), a measure of pathological personality domains and facets in these two groups. They found that higher scores in the detachment and psychoticism domains

differentiated the PTSD group from the control group. James and colleagues (2015) suggested that the personality profile in the veterans with PTSD was characterized mainly by detachment and negative affect, followed by disinhibition and psychoticism, with scores on the antagonism domain comprising a reduced proportion of the profile as compared to veterans without PTSD.

James and colleagues' (2015) findings regarding the contribution of negative affect and psychoticism to PTSD echo Casella and Motta's (1990) results indicating that neuroticism and psychoticism were associated with PTSD. In another study, both high neuroticism and low agreeableness differentiated patients who had experienced heart attacks who met criteria for full PTSD from those who had partial or no PTSD (Chung, Berger, & Rudd, 2007). In addition, low extraversion has been linked with PTSD (Dörfel, Rabe, & Karl, 2008; Fauerbach, Lawrence, Schmidt, Munster, & Costa, 2000).

Additionally, higher levels of neuroticism and lower levels of agreeableness and conscientiousness were associated with a diagnosis of PTSD in young adults (Trull & Sher, 1994). The inverse relationship between conscientiousness and related constructs, such as attention- and novelty-seeking, and PTSD has been replicated in multiple studies (e.g., Richman & Frueh, 1997; Wang et al., 1997). Other studies have also suggested a positive association between harm avoidance and PTSD (e.g., Evren, Dalbudak, Cetin, Durkaya, & Evren, 2010; North, Hong, Suris, & Spitzagel, 2008; Yoon, Jun, An, Kang, & Jun, 2009).

There may also be personality traits that serve as protective factors for development of PTSD. For example, individuals with high levels of hardiness, conceptualized as a combination of adaptive temperament traits and rich early learning history, and a tendency to perceive stressors as meaningful and as opportunities for growth (Kobasa, 1979) have been shown to have fewer PTSD symptoms in a sample of veterans exposed to combat (Bartone, 1999). However,

research on hardiness' relationship with major personality models is limited, and evidence suggests that hardiness may simply be the inverse of neuroticism and highly correlated with positive emotionality (Miller, 2003).

Though studies on the links between personality and PTSD have historically focused on higher-order personality traits or domains, there has been some recent research on facet-level analyses of personality and psychopathology. For example, Rector, Bagby, Huta, and Ayearst (2012) examined personality facets' associations with various primary psychiatric diagnoses (including PTSD, major depressive disorder, generalized social phobia, panic disorder, and obsessive-compulsive disorder) in an outpatient sample. Individuals diagnosed with PTSD had lower scores on neuroticism facets of anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability than those with other diagnoses. They also scored lower on facets of openness, including fantasy, aesthetics, ideas, and values. Conversely, they had higher scores on agreeableness facets of straightforwardness and altruism as well as the conscientiousness facets of competence, achievement-striving, self-discipline, and deliberation. Overall, the results suggested less personality pathology in PTSD than the other disorders (Rector et al., 2012). In a sample of veterans, James and colleagues (2015) found that individuals with PTSD had significantly higher scores on nearly all maladaptive personality facets than those without PTSD, except for the facets of attention-seeking, deceitfulness, grandiosity, manipulativeness, risk taking, and submissiveness. Thus, facet-level analyses can provide more nuanced information about the interaction between personality and psychopathology.

Researchers who study personality correlates of PTSD have found evidence for different personality subtypes of individuals with PTSD, namely "internalizing" and "externalizing" profiles (e.g., Miller, 2003; Miller, Greif, & Smith, 2003). A review of personality literature



found that individuals with an internalizing personality profile, consisting of a combination of high negative emotionality (NEM, or neuroticism) and low positive emotionality/extraversion (PEM) was correlated with symptoms of social avoidance, anxiety, and depression.

Contrastingly, those with an externalizing personality profile had a combination of high NEM and low constraint/inhibition (CON, or conscientiousness) and tended to show symptoms of impulsivity, aggression, antisociality, and substance abuse (Miller, 2003). In this review, Miller suggests that neuroticism is the main personality risk factor for PTSD, with extraversion and conscientiousness playing a moderating role in the expression of the disorder through their interactions with neuroticism.

In a cluster analysis with trauma-exposed veterans, Miller and colleagues (2003) discovered the emergence of an “internalizing” PTSD cluster (high NEM and low PEM), which was correlated with higher scores on measures of conscientiousness and introversion, and had lower levels of alienation and aggression; individuals in this cluster also experienced higher rates of unipolar depression. Meanwhile, individuals within the “externalizing” cluster of PTSD (high NEM and low CON) had increased scores on alienation, aggression, and hypomania, and were more likely to have a substance use disorder diagnosis than those in the internalizing cluster.

### Structure of PTSD

The structure of PTSD has been a longstanding debate within the scientific community. The number of factors composing a PTSD diagnosis is a subject of debate in the literature. There have been proposals for two (Taylor, Kuch, Koch, Crockett, & Passey, 1998; Buckley et al., 1998), three (Anthony, Lonigan, & Hecht, 1999; Foa, Riggs, & Gershuny, 1995), four (Simms, Watson, & Doebbeling, 2002; King, Leskin, King, & Weathers, 1998), five (Elhai et al.,

2011; Morina et al., 2010; Watson et al., 1991), six (Zelazny & Simms, 2015), and even seven factors (Armour, Contractor, Shea, Elhai, & Pietrzak, 2016; Wang et al., 2015). Others have proposed a hierarchical model of PTSD, which included a higher-order PTSD factor and dysphoria factor (Rademaker et al., 2012). The current version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) conceptualizes PTSD as a four-factor model. These factors include intrusions, avoidance, negative alterations in cognition and mood, and alterations in arousal and reactivity associated with the event. This is a marked change from the DSM-IV conceptualization of PTSD as having three factors (intrusions, avoidance/numbing, and hyperarousal) (APA, 2000), which has limited empirical support (Simms et al., 2002).

The two major competing models of PTSD include the four-factor King (King et al., 1998) and Simms model (Simms et al., 2002). Evidence suggests that these two models provide a better fit for the structure of PTSD than single-, two-, and three-factor models (Yufik & Simms, 2010). The Simms model consists of factors of intrusions, avoidance, dysphoria, and hyperarousal. It differs from the DSM-IV model in that three of the five Criterion D (hyperarousal) symptoms in the DSM-IV model (sleep disturbance, irritability, and impaired concentration) are combined with symptoms of the DSM-IV avoidance/numbing cluster to form the dysphoria factor. Consequently, the hyperarousal factor consists of two symptoms, hypervigilance and exaggerated startle response. In a confirmatory factor analysis with military veterans and non-deployed controls, the Simms model proved to be the best fit to the data compared to five additional models of PTSD, including the DSM-IV model, King, and Simms (Simms et al., 2002). Support for the Simms et al. model has been found in various studies (e.g.,

Armour & Shevlin, 2010; Engdahl, Elhai, Richardson, & Frueh, 2011; Krause, Kaltman, Goodman, & Dutton, 2007).

The King model consists of the following factors: re-experiencing, effortful avoidance, emotional numbing, and hyperarousal (King et al., 1998). This model separated the DSM-IV's Avoidance/Numbing cluster into two separate factors. This result has been replicated in multiple studies with diverse samples such as veterans (Mansfield, Williams, Hourani, & Babeu, 2010), crime victims (Scher, McCreary, Asmundson, & Resick, 2008), disaster workers (Palmieri, Weathers, Difede, & King, 2007), and the general population (Cox, Mota, Clara, & Asmundson, 2008).

Research suggests that PTSD is composed of both general aspects and aspects that are specific and unique to the disorder. The dysphoria factor resembles the general, nonspecific distress factor that is proposed in depression and anxiety disorders (Clark & Watson, 1991). In fact, Simms and colleagues found that dysphoria correlated the most strongly with symptoms of depression and general anxiety (Simms et al., 2002). Other studies have also found high correlations between dysphoria and depression (e.g., Elklit & Shevlin, 2010) and suggest that dysphoria might be a factor that is not unique to PTSD (e.g., Elklit, Armour, & Shevlin, 2009). Furthermore, other symptoms of PTSD have been found to be more correlated with trauma exposure than dysphoria (Armour & Shevlin, 2010). There is also evidence that hyperarousal may not be specific to PTSD. In a meta-analysis examining the association between PTSD and other mental illnesses, both hyperarousal and numbing were equally good predictors of depression (Gootzeit & Markon, 2011). Furthermore, hyperarousal in the King model was found to be the best predictor of anxiety and panic out of all PTSD symptoms, and hypervigilance in the Simms model was a unique predictor of anxiety, panic and substance use. Furthermore, Jones

and Barlow (1990) suggest that re-experiencing and numbing symptoms in PTSD are also found in panic disorder. Such evidence supports the hypothesis that PTSD consists of both general and specific elements.

Other factor analysis studies have shown that the King and Simms' model have an almost equivalent good fit (Miller et al., 2010). Palmieri and colleagues (2007) found that the King model fit better for the Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995), a structured interview, while the Simms model fit better for the PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993), a self-report measure of PTSD symptoms. However, a recent meta-analysis found that the Simms et al. model fit the DSM-IV symptom criteria of PTSD slightly better than King's model; these studies included both self-report and structured-interview measures of PTSD (Yufik & Simms, 2010).

The structure of PTSD is unresolved in the scientific community. However, a four-factor model (whether it be King or Simms) currently seems to be supported by the research, as well as today's diagnostic manual for psychological disorders.

### Personality and Specific PTSD Symptoms

Due to the debate regarding the structure of PTSD and the general and specific elements of the disorder, it is informative to examine the correlations of personality with specific symptoms of PTSD. For instance, certain personality traits may be associated with certain PTSD symptoms, while some may be simply related to general distress. Presently, most research on personality and PTSD focuses on the disorder as a unitary construct. However, research is beginning to emerge exploring the links between personality and individual symptoms of PTSD, and suggests that different personality traits may be related to different aspects of the disorder.

### *Personality and Intrusions*

In a study examining a trauma outpatient sample and age-matched control group, higher scores on neuroticism and extraversion significantly predicted PTSD intrusion symptoms after controlling for group membership (Aidman & Kollaras-Mitsinikos, 2006). However, when examining the two groups separately, only impulsivity was significantly associated with intrusions in the trauma group, while only neuroticism was significantly correlated with intrusions in the control group.

Furthermore, moderate correlations were found between each PID-5 domain (negative affect, detachment, antagonism, disinhibition, and psychoticism) and intrusions in a confirmatory factor analysis of a 6- and 7-factor model of PTSD (Zelazny & Simms, 2015). In a prospective study of civilians who were exposed to air attacks, only openness to experience was a significant predictor of intrusions one year following trauma exposure (Knezevic, Opacic, Savic, & Priebe, 2005).

Neuroticism, a personality trait that has consistently been shown to be associated with PTSD and other mental illnesses as discussed above, has also been associated with intrusions (Watson & Naragon-Gainey, 2014). Both neuroticism and low agreeableness predicted PTSD intrusion symptoms in a sample of older adults with a history of myocardial infarctions (Chung, Berger, & Rudd, 2007).

### *Personality and Avoidance*

Personality links with the PTSD symptom of avoidance has also been studied. Like other mental health symptoms, neuroticism has been found to be significantly associated with avoidance symptoms in various samples including trauma unit outpatients (Aidman & Kollaras-

Mitsinikos, 2006), psychiatric outpatients (Watson & Naragon-Gainey, 2014), and individuals who had experienced myocardial infarctions (Chung, Berger, & Rudd, 2007).

Similar to intrusions, moderate correlations were found between Negative Affect, Detachment, Antagonism, Disinhibition, and Psychoticism and avoidance in a confirmatory factor analysis of a 6- and 7-factor model of PTSD (Zelazny & Simms, 2015). Likewise, the avoidance symptom of PTSD was correlated with personality traits of anger, depression, and anxiety, and negatively correlated with optimism (Bramsen, van der Ploeg, Leo, & Adèr, 2002).

Higher scores on the “distress” subscale of a scale of socio-emotional adjustment and personality functioning, which measures anxiety, depression, low self-esteem, low well-being, was associated with PTSD avoidance symptoms; lower scores on the “restraint” subscale (impulse control) were associated with avoidance symptoms as well (Erickson & Steiner, 2001).

Research has additionally emerged about the links between experiential avoidance and PTSD. Experiential avoidance is when an individual exerts effort to avoid private experiences, such as thoughts, emotions, and bodily experiences (Boeschen, Koss, Figueredo, & Coan, 2001), and is a construct that is discussed in various theoretical orientations and psychotherapeutic approaches, and is thought by some to be an important underlying factor in the development and maintenance of psychopathology (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). In a longitudinal study, Marx and Sloan (2005) discovered that, after controlling for baseline PTSD symptoms, experiential avoidance was significantly associated with PTSD symptoms 4 and 8 weeks later in a sample of college students who had been exposed to trauma. In a different sample of rape survivors, researchers found that engaging in cognitive avoidance (which includes avoiding cognitions about the trauma) was associated with higher PTSD symptom severity, though the authors cautioned that this correlation was mediated by social cognitions

(including self- and external blame and beliefs about one's place in the world) (Boesch et al., 2001). Another study found that experiential avoidance partially mediated the effect of PTSD on the quality of life of Kosovo war survivors (Kashdan, Morina, & Priebe, 2009). Thus, research suggests that there may be evidence that experiential avoidance influences the severity of PTSD.

There has been limited research regarding personality correlates of experiential avoidance. Studies have found that experiential avoidance is strongly associated with neuroticism (Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011), and a recent study found a specific association with the anxiety facet of neuroticism (Naragon-Gainey & Watson, 2016). Experiential avoidance has been shown to be positively related to anxiety sensitivity, an individual's tendency to be afraid of bodily sensations related to anxiety, and BIS sensitivity, thought to be a harm avoidance system that is related to negative affect (Pickett, Lodi, Parkhill, & Orcutt, 2012). For instance, Tull & Gratz (2008) found that experiential avoidance was a mediator of the relationship between anxiety sensitivity and depression. Similarly, experiential avoidance was shown to fully mediate the relationship between the behavioral inhibition system (BIS), and probable PTSD in undergraduate students (Maack, Tull, & Gratz, 2012). Furthermore, experiential avoidance has been implicated in borderline personality features (Sharp, Kalpakci, Mellick, Venta, & Temple, 2015).

### *Personality and Hyperarousal*

Agreeableness was negatively associated with hyperarousal symptoms in an aggregated sample of psychiatric outpatients and college students (Watson & Naragon-Gainey, 2014). Additionally, in a subsample of psychiatric outpatients in this study, neuroticism was more strongly correlated with hyperarousal symptoms than with intrusions and avoidance symptoms.

Like avoidance and intrusions, hyperarousal symptoms were positively correlated with personality traits of anger, depression, and anxiety; and negatively correlated with optimism (Bramsen et al., 2002).

Research suggests that, similar to intrusion and avoidance symptoms, neuroticism plays a large role in predicting hyperarousal symptoms, though the evidence is not conclusive. For example, neuroticism was the only personality trait was significantly associated with PTSD hyperarousal symptoms in individuals who had experienced myocardial infarctions (Chung, Berger, & Rudd, 2007). In a prospective study, pre-trauma neuroticism predicted PTSD total symptoms as well as PTSD arousal symptoms. However, after controlling for pre-trauma arousal symptoms, neuroticism no longer significantly predicted PTSD or post-trauma arousal symptoms (Engelhard, van den Hout, & Kindt, 2003). The increase in PTSD arousal symptoms post-trauma was the same for individuals with both high and low neuroticism, suggesting that neuroticism does not play a significant role in increasing arousal symptoms after a traumatic event.

Similar to avoidance and intrusion symptoms, the “distress” subscale of a measure of emotional adjustment and personality functioning was positively associated with hyperarousal symptoms, while impulse control was negatively associated with hyperarousal (Erickson & Steiner, 2001).

#### *Personality and Numbing/Dysphoria*

There has been limited research on specific personality associations with the PTSD symptom of numbing, which is sometimes termed dysphoria, though these concepts are not quite synonymous. See above section “Structure of PTSD” for a discussion of differences between the



King (which includes emotional numbing) and Simms (which combines emotional numbing with arousal symptoms to create the dysphoria subcluster, conceptualized as nonspecific, general distress) models of PTSD.

Morgan, Matthews, and Winton (1995) found that the personality trait of private self-consciousness was linked with higher levels of PTSD numbing symptoms. Engelhard and colleagues (2003) found that neuroticism was moderately associated with PTSD numbing symptoms as well as avoidance symptoms. In an aggregated sample of psychiatric outpatients and college students, dysphoria had the strongest association with neuroticism of all the PTSD symptoms (Watson & Naragon-Gainey, 2014). In the aforementioned study, dysphoria was also significantly negatively correlated with conscientiousness and agreeableness.

Furthermore, Watson, Gamez, and Simms (2005) discovered that the Negative Temperament scale of the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993), which measures the personality trait of neuroticism, had the highest association with dysphoria out of all the PTSD symptoms in a sample of Gulf War veterans. The authors of this study interpreted this result as evidence that neuroticism may be a stronger predictor of general, subjective distress, than symptoms that are unique to PTSD, such as avoidance and intrusions.

### *Limitations in Current Literature*

Though there has been a growing body of research in the field of personality and PTSD, there are various gaps in the literature that this study hopes to address. First, most studies only examine higher-order personality traits and domains, neglecting lower-order specific facets. By examining personality traits at the facet level, more fine-grained information can be attained about the specific relations between personality and PTSD. Second, traditional personality

studies have examined personality associations with PTSD as a unitary disorder. However, research suggests that PTSD, along with other psychiatric disorders, has a general nonspecific distress component. This study hopes to control for the effects of general distress to examine personality associations with symptoms that are unique to PTSD in order to contribute to knowledge of risk factors for development of PTSD.

### Summary of Literature Review

Personality factors have evidenced significant relationships with PTSD symptoms. Most studies that examined the relationship between personality and PTSD were cross-sectional, examined PTSD as a unitary construct, and only focused on higher-order personality traits or domains. Overall, neuroticism is consistently linked with PTSD. Other personality traits associated with PTSD as a unitary disorder include trait hostility and anger, trait anxiety, harm avoidance, novelty-seeking, low conscientiousness, low extraversion, and high psychoticism.

Examining personality associations with individual PTSD symptoms, neuroticism was highly associated with each individual PTSD symptom (intrusions, avoidance, numbing/dysphoria, and hyperarousal). High levels of extraversion, openness to experience, detachment, disinhibition, psychoticism, and antagonism were also related to intrusions. Impulsivity was strongly implicated as well, as was low agreeableness. With regards to avoidance, high anger, impulsivity, anxiety, and depression showed significant relationships. Low optimism was also associated with avoidance symptoms. Similar to intrusion symptoms, high detachment, disinhibition, psychoticism, and antagonism were also related to avoidance. For hyperarousal, low levels of agreeableness were significantly related to this symptom. Hyperarousal symptoms were also positively correlated with anger, depression, and anxiety; and

negatively correlated with optimism and impulse control. For numbing/dysphoria, also known as the “general distress” component of PTSD, high levels of neuroticism and self-consciousness and low levels of conscientiousness and agreeableness demonstrated significant associations.

In sum, most studies have focused on PTSD as a unitary disorder, though studies that examined the relationship between personality and individual PTSD symptom have tended to focus on intrusions and avoidance symptoms, the hallmark symptoms of PTSD. More research is needed on the relationships between lower-order facets and individual PTSD symptoms, controlling for the presence of general distress that is present in many psychiatric disorders.

### Study Aims and Hypotheses

The present study sought to examine which personality facets and domains are associated with individual PTSD symptoms, particularly symptoms that were unique to PTSD (i.e., intrusions and avoidance), while controlling for effects of general distress (i.e., depression). The study was conducted in two different samples—undergraduates and 9/11 World Trade Center (WTC) first responders.

**Aim 1:** To examine which specific personality facets are significantly associated with unique PTSD symptoms, after controlling for depression.

**Hypothesis 1:** After controlling for general depression, the following associations between personality facets and the following PTSD symptoms are hypothesized to emerge, based on previous research:

- **Intrusions and Avoidance:** personality facets reflecting low extraversion/high detachment (PID-5 Withdrawal, Anhedonia, Intimacy Avoidance) and facets from the Psychoticism domain (Unusual beliefs & experiences, Eccentricity, Perceptual Dysregulation), as suggested by several studies (e.g., James et al., 2015; Kotov et al., 2010), will have significant associations with PTSD intrusions and avoidance. Furthermore, as previous literature suggests

(e.g., Aidman & Kollaras-Mitsinikos, 2006; Erickson & Steiner, 2001; Kotov et al., 2010), facets reflecting low conscientiousness, such as Irresponsibility, Impulsivity, and Distractibility (facets of the PID-5 Disinhibition domain) and low scores on Self-Efficacy, Orderliness, Dutifulness, Achievement-Striving, Self-Discipline, and Cautiousness (facets of the IPIP NEO-PI-R Conscientiousness trait) will show significant associations with intrusions and avoidance.

- **Hyperarousal:** Facets related to low Agreeableness/high Disinhibition (negative correlations with IPIP Trust, Morality, Altruism, Cooperation, Modesty, and Sympathy; positive correlations with PID-5 Irresponsibility, Impulsivity, Distractibility), and high Neuroticism (positive correlations with IPIP Anxiety, Anger, Depression, Self-consciousness, Immoderation, and Vulnerability and PID-5 Emotional Lability, Anxiousness, and Separation Insecurity) will be associated with PTSD hyperarousal. Since previous research has suggested an association between hyperarousal and panic, the Anxiety facets from the PID-5 and IPIP will have particularly high correlations with hyperarousal.

- **Negative Alterations in Cognition and Mood:** Since this symptom is considered a “general distress” component of PTSD, it is hypothesized that facets of the Neuroticism/Negative Affect domains from the PID-5 and IPIP (see list of facets from “Hyperarousal” section above) will be significantly associated with PTSD numbing.

**Aim 2:** To determine whether the relationship between personality facets and PTSD is consistent across two samples.

**Hypothesis 1:** The links between personality facets and PTSD will be replicated across the two study samples, i.e. undergraduate students and WTC first responders. The traits that are shown to be associated with PTSD symptoms in both samples will serve as stronger evidence of personality associations with PTSD.

## CHAPTER 2

### METHODS

#### Participants

Participants were recruited from two different samples. One sample consisted of 707 undergraduate students at The University of North Texas (UNT) recruited through the online research participation SONA system. 23.5% of participants met criteria for probable PTSD based on the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5). Inclusion criteria required a presence of trauma based on the Life Events Checklist for DSM-5 Extended Version (LEC-5 Extended). Participants received extra credit in psychology courses for participation in the study. A second sample consisted of a sample of 536 WTC responders whose data has already been collected. All participants were provided informed consent. See Table 1 for demographic information for each sample.

#### Measures

##### *Demographic Questionnaire*

A short survey asking participants questions about their demographic information, including age, gender, race, ethnicity, marital status, and income was administered.

##### *Life Events Checklist for DSM-5 Extended Version (LEC-5 Extended)*

The LEC-5 Extended (Weathers, Blake, Schnurr, Kaloupek, Marx, & Keane, 2013) is a self-report measure that screens for lifetime potentially traumatic events. The first 16 items assess exposure to 16 events and one additional item assesses exposure to any extremely stressful event that was not captured in the first 16 items. Potential responses for each event are

“happened to me,” “witnessed it,” “learned about it,” “part of my job,” “not sure,” or “never happened.” The remaining items require participants to explain any exposure to an event that was not on the list; to indicate which event was the worst in case they endorsed more than one event; and to give more information regarding the worst event or the only event, if the participant endorsed only one event. Psychometric properties are not yet available for the LEC-5, but it has only been minimally changed since the previous version. The previous version of the LEC has shown good convergence with other measures of potential traumatic event exposure and adequate temporal stability; a study assessing its psychometric properties found that the mean  $\kappa$  for all items = .61, and the retest correlation  $r = .82$  (Gray, Litz, Hsu, & Lombardo, 2004).

#### *Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5)*

The PCL-5 (Weathers, Litz, Keane, Palmieri, Marx, & Schnurr, 2013) is a 20-item self-report measure that assesses symptoms of PTSD. Participants were asked to rate the severity of their symptoms on a 5-point Likert scale, from *not at all* to *extremely*. A total symptom severity score can be calculated by summing the scores for each items. Additionally, four DSM-5 symptom cluster severity scores can be calculated by adding scores for items within each cluster, i.e. Intrusions (Cluster B: Items 1-5), Avoidance (Cluster C: Items 6-7), Negative Alterations in Cognition and Mood (Cluster D: Items 8-14), and Hyperarousal (Items 15-20). The PCL-5 has evidenced strong internal consistency in previous studies with trauma-exposed college students ( $\alpha = .94$ ), test-retest reliability ( $r = .82$ ), and convergent and discriminant validity ( $r_s = .74$  to  $.85$ ,  $r_s = .31$ -.60, respectively) (Blevins, Weathers, Davis, Witte, & Domino, 2015). Internal consistency for each PTSD dimension was  $\alpha = .90$  in the undergraduate sample in the present study.

### *Posttraumatic Stress Disorder Checklist-Specific Version (PCL-S)*

The PCL-S (Weathers et al., 1993) is a 17-item self-report measure that assessed the severity of World Trade Center-related *DSM-IV* PTSD symptoms in the past month in the WTC responder sample. Participants rated each item on a 5-point Likert scale, from *not at all* to *extremely*. The PCL-S showed excellent internal consistency in this sample ( $\alpha = .96$ ). Previous research has indicated that the PCL-S has adequate test-retest reliability ( $r = .66$ ), good internal consistency ( $\alpha > .75$ ) and high convergent and discriminant validity (Wilkins, Lang, & Norman, 2011). In the WTC sample, internal consistency ranged from  $\alpha = .89 - .93$ .

### *Personality Inventory for DSM-5 (PID-5)*

The PID-5 (Krueger et al., 2012) is a 220-item self-report questionnaire that measures DSM-5 maladaptive personality traits. The items consist of 25 personality facets that comprise five higher-order domains. Participants are asked to rate how much each statement applies to them on a 4-point Likert scale, from *very false or often false* to *very true or often true*. The 5 domains are negative affect, detachment, antagonism, disinhibition, and psychoticism. The 25 facets include: anhedonia, anxiousness, attention seeking, callousness, deceitfulness, depressivity, distractibility, eccentricity, emotional lability, grandiosity, hostility, impulsivity, intimacy avoidance, irresponsibility, manipulativeness, perceptual dysregulation, perseveration, restricted affectivity, rigid perfectionism, risk taking, separation insecurity, submissiveness, suspiciousness, unusual beliefs & experiences, and withdrawal. Each higher-order domain is calculated by using the average of three facet scales: Negative Affect is composed of Emotional Lability, Anxiousness, and Separation Insecurity; Detachment is composed of Withdrawal, Anhedonia, and Intimacy Avoidance; Antagonism is composed of Manipulativeness,

Deceitfulness, and Grandiosity; Disinhibition is composed of Irresponsibility, Impulsivity, and Distractibility; Psychoticism is composed of Unusual Beliefs & Experiences, Eccentricity, and Perceptual Dysregulation. In community samples of treatment-seeking individuals, internal consistency for the 25 facets ranged from  $\alpha = .73 - .95$ , and from  $\alpha = .89 - .96$  for the five domains (Krueger et al., 2012). In the undergraduate sample in the present study, internal consistency for the 25 facets ranged from  $\alpha = .66 - .91$ . For the five domains,  $\alpha$  ranged from .91 - .96. In the WTC sample, internal consistency in the facet scales ranged from  $\alpha = .74 - .95$ . For the domains, internal consistency ranged from  $\alpha = .89 - .96$ .

#### *International Personality Item Pool (IPIP)*

Three hundred seventeen self-report items from the IPIP (Goldberg et al., 2006) representation of Costa and McCrae's (1992) five NEO-PI-R personality domains and 30 facets were used to measure the Big Five personality domains and associated facets. Each higher-order domain is composed of six facets. Participants are instructed to rate how accurately each statement describes them on a 5-point Likert scale, from *very inaccurate* to *very accurate as a description of you*. The neuroticism domain is composed of anxiety, anger, depression, self-consciousness, immoderation, and vulnerability. The extraversion domain is composed of friendliness, gregariousness, assertiveness, activity level, excitement-seeking, and cheerfulness. Openness to experience is composed of imagination, artistic interests, emotionality, adventurousness, intellect, and liberalism. Agreeableness is composed of trust, morality, altruism, cooperation, modesty, and sympathy. Finally, conscientiousness is composed of self-efficacy, orderliness, dutifulness, achievement-striving, self-discipline, and cautiousness. The internal consistency of the IPIP items ranged from  $\alpha = .77 - .86$  in the five domains, and from  $\alpha$



= .71 - .88 in the 30 facets (Goldberg, 1999). In the present study, the internal consistency of IPIP facets ranged from  $\alpha = .71 - .91$ .

### *Inventory of Depression and Anxiety Symptoms (IDAS-II)*

The IDAS-II (Watson et al., 2012) is a 99-item self-report measure of symptoms of mood and anxiety disorders. Participants are asked to rate how severely they experienced each symptom on a 5-point Likert scale from *not at all* to *extremely*. The IDAS-II includes the following 18 symptom scales plus General Depression: Dysphoria, Lassitude, Insomnia, Suicidality, Appetite Loss, Appetite Gain, Well-Being, Ill Temper, Mania, Euphoria, Panic, Social Anxiety, Claustrophobia, Traumatic Intrusions, Traumatic Avoidance, Checking, Ordering, and Cleaning. For this study, the scales of interest are those related most closely to mood, anxiety, and PTSD symptoms, so only items from the following scales will be administered to participants: General Depression, Dysphoria, Well-Being, Ill Temper, Mania, Euphoria, Panic, Social Anxiety, Traumatic Intrusions, and Traumatic Avoidance. Internal consistency of the IDAS-II scales ranged from  $\alpha = .72 - .9$  (Watson et al., 2012). For the specific scales in this study, previous research has demonstrated the following internal consistencies in samples of patients, college students, and adults: Dysphoria ( $\alpha = .88 - .90$ ), Well-Being ( $\alpha = .88 - .90$ ), Ill Temper ( $\alpha = .85 - .88$ ), Mania ( $\alpha = .82 - .86$ ), Euphoria ( $\alpha = .72 - .79$ ), Panic ( $\alpha = .82 - .83$ ), Social Anxiety ( $\alpha = .84 - .86$ ), Traumatic Intrusions ( $\alpha = .82 - .86$ ), and Traumatic Avoidance ( $\alpha = .88$ ). General Depression, a stand-alone scale that is a composite of items from other scales, was not analyzed. IDAS-II scales have shown strong convergent and discriminant validity with other self-report and interview measures of mood disorders and mania; they have also evidenced significant criterion and incremental validity in relation to interview measures of

the *DSM-IV* (American Psychiatric Association, 2000) symptoms and disorders (Watson et al., 2012). In the undergraduate sample, the internal consistency of the IDAS General Depression scale was  $\alpha = .92$ .

### *Patient Health Questionnaire-9<sup>th</sup> Edition (PHQ-9)*

The PHQ-9 (Kroenke, Spitzer, & Williams, 2001) is a 10-item self-report measure of symptoms of depression according to the *DSM-IV* (American Psychiatric Association, 2000). The first nine items inquire about frequency of symptoms over the past two weeks on a 4-point Likert scale from *not at all* to *nearly every day*. The tenth item asks participants how difficult the symptoms made it for them to function, from *not difficult at all* to *extremely difficult*. The scores on the first 9 items are summed to give a total severity score which corresponds to categories of a provisional depression diagnosis. This measure was only administered to the WTC responders to assess depression symptoms, and will not be administered to the undergraduate sample. The PHQ-9 has been shown to have strong internal consistency ( $\alpha = .86 - .89$ ) in primary care and obstetrics-gynecology clinics. It has also demonstrated strong criterion validity when related to an interview by a mental health professional, as well as substantial construct validity when compared with other self-report measures (Kroenke et al., 2001).

### *Trauma Severity Questionnaire*

There are various methods researchers use to assess trauma severity, such as examining the likelihood of different categories of events to lead to PTSD, comparing self- versus other-ratings, or researching objective criteria such as distance from a natural disaster (Breslau, 2012). However, there has been little research specifically to develop a continuous measure of event

severity that encompasses a large number of potentially traumatic events that can lead to PTSD (Rubin & Feeling, 2013). For this study, trauma severity was assessed using self-report questions created by Rubin and Feeling (2013) specifically for this purpose. Participants were asked five questions on a 7-point Likert scale from *negligible* to *as much as any event I could imagine*. These questions assess the physical, emotional, and financial impact of the traumatic event; the severity that the participant judges other people would rate the event; and how much the participant believes the event to affect his or her future. One additional question asks participants how they would rate the overall impact the event had on their lives, on a 7-point Likert scale from *not at all* to *the highest impact possible*. The four questions assessing the physical, emotional, financial, and future impact of the event evidenced adequate internal consistency ( $\alpha = .69$ ) and convergent validity in relation to other self-report measures of event severity (both self- and other-rated severity) and in a sample of college students. The reliability of the remaining two questions was not assessed (Rubin & Feeling, 2013).

### Procedure

Participants recruited via SONA were administered all surveys online and were instructed to complete them in one session. Participants completed the questionnaires in the following order: demographic questionnaire, LEC-5, PCL-5, trauma severity questionnaire, (PID-5, IPIP), and IDAS-II. Participants were randomized to be given the PID-5 and IPIP in different orders (i.e., first IPIP followed by the PID-5, or vice versa). Several validity questions were embedded within the survey in an effort to assess whether participants were truly completing the questionnaires to the best of their abilities. SONA participants received three extra credits in psychology classes for their participation.

Participants in the World Trade Center responder sample ( $N = 536$ ) came from the Long Island location of the WTC Health Program, which monitors and provides treatment for WTC-related conditions (Waszczuk et al., 2016). The program began in 2002, with rolling admission. They were administered the PID-5, and their mental and physical health were annually assessed. The PHQ-9 was used to assess depression symptoms. The Posttraumatic Stress Disorder Checklist-Specific Version was utilized to assess the severity of WTC-related PTSD symptoms.

### Analyses and Power Analysis

A priori, it was decided that effect sizes below .100 would not be interpreted. The relative importance of personality facets and traits was examined by rank-ordering effect sizes for each PTSD dimension. The linearity of the relationship between the independent and dependent variables was assessed prior to running the regressions. Multicollinearity was also assessed for the independent variables. Homoscedasticity was assessed for each model.

To test the hypotheses, a series of simple bivariate correlations were run between each personality facet/domain and each PTSD dimension. This was done for both the IPIP and the PID-5. Because there were few differences between PID-5 results in the two samples, the PID-5 bivariate correlations were averaged (non-averaged values are reported in a supplementary appendix table). These correlations were examined to determine associations of facets with each separate PTSD dimension.

Multiple regressions controlling for depression were then conducted to analyze effects after removing variance related to the nonspecific distress component of PTSD. For the SONA sample, a series of multiple regressions were conducted with each individual personality facet or domain (from the PID-5 or IPIP) and IDAS general depression as the predictor variables, and an

individual PTSD dimension as the outcome variable. For the WTC sample, the same analyses were conducted, but general depression was substituted by PHQ-9 total scores, as these participants completed this measure instead of the IDAS-II. Like the bivariate correlations, the beta values for the two samples were averaged (as before, non-averaged values are reported in a supplementary appendix table).

Prior to data collection, power analyses had suggested that a sample of 500 was sufficient to detect standardized coefficients of .16 and larger with 80% power and  $\alpha = .05$  (Faul, Erdfelder, Lang, & Buchner, 2007).

## CHAPTER 3

### RESULTS

Prior to testing hypotheses, the data was prepared, scored and cleaned, including assessing for outliers and testing assumptions. The variables of interest were inspected for normality and skewness. Table 1 displays the demographic variables for each dataset (SONA undergraduate and WTC sample).

Subsequent tables report results according to the measure. Tables 2 and 3 report results for the IPIP, including the bivariate correlations (Table 2) and regression betas after controlling for depression (Table 3).

Tables 4 and 5 report the results for the PID-5 (averages across the 2 samples are reported), including the average bivariate correlations (Table 4) and the average regression betas, after controlling for (partialling out) the effects of depression (Table 5). The appendix reports these results for each sample separately (Table 6 and 7 for the SONA sample and Table 8 and 9 for the WTC sample).

#### IPIP

##### *IPIP Bivariate Correlations*

Bivariate correlations were run in the SONA sample between personality facets/domains and PTSD symptoms prior to controlling for general depression. Table 2 shows IPIP correlations with PTSD symptoms.

Overall PTSD was much more strongly related to Neuroticism at the trait level ( $r = .473$ ) than Conscientiousness, Agreeableness, and Extraversion ( $r = -.209$  to  $-.266$ ). Openness was not significantly related at all to PTSD ( $r = -.009$ ).

Four Neuroticism facets (Depression, Vulnerability, Anger, and Anxiety) were highly related to PTSD, as was the Neuroticism trait ( $r = .321$  to  $.473$ ). Of these, Depression had the highest relationship with PTSD ( $r = .473$ ). Other facets of Neuroticism, however, had far smaller associations with PTSD ( $r = .196$  to  $.365$ ).

Agreeableness was also important, but not all facets were equally related to PTSD. Trust was highly significant ( $r = -.371$ ), but the facets of Sympathy and Modesty did not reach significance.

For Conscientiousness, the facets of Self-Efficacy and Dutifulness had the greatest association with PTSD ( $r = -.268$  to  $-.286$ ), while Order and Cautiousness had much lower correlations ( $r = -.077$  to  $-.162$ ).

The Extraversion facets of Friendliness and Cheerfulness had the highest relationship with PTSD ( $r = -.274$  to  $-.279$ ). Only two facets of Openness reached significance, and they had lower associations than most other personality traits and facets ( $r = -.077$  to  $-.151$ ).

Similar patterns emerged when examining correlations between personality and specific PTSD dimensions (Intrusions, Avoidance, Numbing, and Hyperarousal). Trust continued to be significantly associated with all PTSD dimensions. In almost all cases, Numbing tended to have the strongest association with personality facets and traits. The difference was most substantial for the Depression facet ( $r = .534$  in Numbing,  $r = .330$  to  $.419$  in other PTSD dimensions). Self-Discipline was more strongly related to Numbing and Hyperarousal ( $r = -.237$  to  $-.243$ ) than to Intrusions and Avoidance ( $r = -.126$  to  $-.143$ ). Another symptom-specific difference was that Dutifulness and Morality had their lowest associations with the Avoidance symptom ( $r = -.162$  and  $-.104$ , respectively).

### *IPIP Multiple Regressions Controlling for Depression*

Multiple regressions were run with personality facets and domains predicting PTSD symptoms, controlling for IDAS general depression. Table 3 shows the IPIP betas for PTSD symptoms.

Overall, after controlling for depression, the remaining (unique) variance in PTSD was most associated with Agreeableness ( $\beta = -.119$ ). Neuroticism was the next trait ( $\beta = .088$ ), followed by Conscientiousness ( $\beta = -.031$ ). Extraversion ( $\beta = -.004$ ) and Openness ( $\beta = .002$ ) had the weakest association with PTSD after controlling for depression.

For Agreeableness, the Trust facet was the most important predictor of PTSD ( $\beta = -.183$ ). Two facets of Neuroticism (Depression and Anger) had stronger relationships than the other facets of Neuroticism ( $\beta = .100$  to  $.114$ ). Dutifulness was the most important facet of Conscientiousness ( $\beta = -.088$ ).

Individual PTSD symptoms had the same beta patterns as total PTSD, with a few exceptions. For Intrusions, Conscientiousness was the least related trait ( $\beta = .003$ ). Depression was no longer the most important predictor of all the Neuroticism facets; instead, Vulnerability and Anger rose to the top ( $\beta = .073$  to  $.076$ ). Activity Level and Self-Discipline were also related to Intrusions, but these associations did not reach significance ( $\beta = .085$  to  $.092$ ).

Avoidance was most predicted by the Neuroticism trait ( $\beta = .124$ ). The other traits had very small associations with Avoidance ( $\beta = .006$  to  $.071$ ). Two Neuroticism facets (Vulnerability and Immoderation) had strong relationships with Avoidance ( $\beta = .101$  to  $.106$ ), with Anger and Anxiousness following closely ( $\beta = .083$  to  $.095$ ). Other than Trust ( $\beta = -.171$ ), most other facets were not significantly related to Avoidance.



Hyperarousal, on the other hand, was not strongly predicted by the Neuroticism trait ( $\beta = .021$ ). The Agreeableness trait was significantly related to Hyperarousal ( $\beta = -.125$ ). Trust and Morality had a high correlation with Hyperarousal ( $\beta = -.104$  to  $-.155$ ). Of these, Trust had the strongest relationship. Only the Anger ( $\beta = .105$ ) facet of Neuroticism had a high correlation with Hyperarousal. Dutifulness was strongly related to Hyperarousal ( $\beta = -.099$ ). Excitement-seeking was the only Extraversion facet that was related to Hyperarousal ( $\beta = .096$ ).

Numbing was strongly predicted by two Neuroticism facets (Depression and Immoderation,  $\beta = .103$  to  $.263$ ). Depression emerged as the most strongly related facet. Neuroticism and Agreeableness strongly predicted Numbing ( $\beta = .139$  and  $\beta = -.113$ , respectively). Trust was the strongest facet of Agreeableness related to Numbing ( $\beta = -.196$ ).

In terms of personality specificity, Depression was the most predictive of Numbing ( $\beta = -.263$ ). Morality was most predictive of Hyperarousal ( $\beta = -.104$ ), and Vulnerability had the largest association with Avoidance ( $\beta = .106$ ).

Beta weights for General Depression ranged from  $.335$  to  $.591$ . The bivariate correlations between General Depression and IPIP traits were as follows: Neuroticism ( $r = .659$ ), Extraversion ( $r = -.357$ ), Openness ( $r = -.024$ ), Agreeableness ( $r = -.224$ ), and Conscientiousness ( $r = -.428$ ).

## PID-5

### *PID-5 Bivariate Correlations*

After taking the average across both samples, overall PTSD had strong to moderate relationships with Negative Affect ( $r = .580$ ), Detachment ( $r = .578$ ), Disinhibition ( $r = .539$ ), and Psychoticism ( $r = .496$ ). PTSD had the weakest association with Antagonism ( $r = .181$ ).

With respect to facets, Depressivity was the most correlated personality facet with overall PTSD ( $r = .600$ ). In Detachment, Anhedonia also had a very high correlation with overall PTSD ( $r = .587$ ). For Psychoticism, Perceptual Dysregulation had the strongest association with PTSD ( $r = .577$ ) compared to other Psychoticism facets ( $r = .436$  to  $.449$ ). For Negative Affect, Anxiousness had the highest relationship ( $r = .576$ ). Emotional Lability was significantly related to PTSD ( $r = .554$ ). Other highly correlated traits included Distractibility ( $r = .515$ ), Withdrawal ( $r = .511$ ), and Perseveration ( $r = .498$ ). Antagonism facets were weakly associated with PTSD.

For PTSD Intrusions, Avoidance, Numbing and Hyperarousal symptoms, a similar pattern emerged, with a few major exceptions. In Avoidance, Anxiousness had the strongest correlation ( $r = .465$ ).

Like the IPIP, Numbing had the highest correlations with personality traits and facets. This difference was most noticeable for Anhedonia and Depressivity facets, and the Detachment domain.

#### *PID-5 Multiple Regressions Controlling for Depression*

At the domain level, Detachment had a strong relationship with PTSD ( $\beta = .225$ ), as did Psychoticism and Negative Affect ( $\beta = .194$ -. $196$ ). Disinhibition was less related to PTSD ( $\beta = .140$ ), and Antagonism was not related to PTSD ( $\beta = .037$ ).

Most PID-5 facets were significantly related to PTSD. Perceptual Dysregulation, a facet of Psychoticism, was the most related facet to PTSD ( $\beta = .234$ ), and was more related than other Psychoticism facets ( $\beta = .120$  to  $.168$ ). In Detachment, Withdrawal had the highest association with PTSD ( $\beta = .200$ ). Within Negative Affect, Emotional Lability ( $\beta = .182$ ) and Anxiousness ( $\beta = .171$ ) were more related to PTSD than Separation Insecurity ( $\beta = .100$ ). Depressivity was

highly related to PTSD as well ( $\beta = .199$ ). Within Disinhibition, Distractibility ( $\beta = .122$ ) was more related to PTSD than Impulsivity and Irresponsibility ( $\beta = .088$  to  $.098$ ). Facets of Antagonism were not significantly related to PTSD.

Individual PTSD dimensions had similar beta patterns as total PTSD, with a few exceptions. Disinhibition ( $\beta = .061$ ) and its associated facet, Distractibility ( $\beta = .053$ ), were not significantly related to Avoidance, but they were significantly related to every other PTSD dimension ( $\beta = .130$  to  $.149$  for Disinhibition,  $\beta = .111$  to  $.139$  for Distractibility). Depressivity was also relatively less important to Avoidance ( $\beta = .101$ ) than to other PTSD dimensions ( $\beta = .135$  to  $.278$ ).

For Numbing, Anhedonia was the most related facet ( $\beta = .286$ ). Depressivity was more related to Numbing ( $\beta = .278$ ) compared to other PTSD dimensions ( $\beta = .101$  to  $.150$ ). Negative Affect was less strongly related to Hyperarousal ( $\beta = .140$ ) than it was to other PTSD dimensions ( $\beta = .173$  to  $.203$ ).

For the PID-5, beta weights for General Depression and PHQ-9 Depression ranged from  $.306$  to  $.846$ . The bivariate correlations between the PID-5 domains and General Depression scores for the SONA sample are as follows: Negative Affect ( $r = .647$ ), Detachment ( $r = .578$ ), Antagonism ( $r = .272$ ), Disinhibition ( $r = .518$ ), and Psychoticism ( $r = .513$ ).

For the WTC sample, the bivariate correlations between the PID-5 domains and PHQ-9 Depression scores were as follows: Negative Affect ( $r = .630$ ), Detachment ( $r = .637$ ), Antagonism ( $r = .161$ ), Disinhibition ( $r = .605$ ), and Psychoticism ( $r = .566$ ).

## CHAPTER 4

### DISCUSSION

A number of studies in the past have assessed the association between personality and PTSD. However, far fewer have explored the importance of individual personality facets, rather than the broader traits. Moreover, PTSD has a large general distress component, which is not unique to the disorder. We are aware of no studies to try to isolate which aspects of personality are related to the unique, non-distress part of PTSD. To address these shortcomings, the present work assessed the relationship of PTSD to both traits and facets of personality, as well as repeated these analyses after controlling for depression. Moreover, the study looked at both normal personality variants as well as maladaptive variants. Four major findings emerged.

First, after controlling for depression, Trust was the most strongly related facet to PTSD in the IPIP. Higher levels of Trust were associated with lower levels of PTSD. Agreeableness, the trait that Trust belongs to, was also significantly negatively related to PTSD dimensions. Research has suggested a relationship between low Agreeableness and PTSD (e.g., Chung, Berger, Rudd, 2007, Trull & Sher, 1994). However, the present study went further by identifying one specific facet of Agreeableness, Trust, that was particularly related to PTSD dimensions.

Second, Neuroticism, which is strongly related to PTSD dimensions in bivariate correlations, was not related to overall PTSD controlling for depression. Neuroticism was, however, still associated with Avoidance and Numbing. This speaks to how this personality trait, so often implicated in PTSD (e.g., Kotov et al., 2010; Aidman & Kollaras-Mitsinikos, 2006; Watson & Naragon-Gainey, 2014), is a risk factor for psychopathology broadly, but not PTSD specifically. This trait may be related to some dimensions of PTSD (i.e., avoidance and numbing), but not others (i.e., intrusions and hyperarousal). Furthermore, the present study

revealed that certain facets of the broad trait continued to be important. After controlling for depression, the Depression facet continued to be related to overall PTSD and Numbing, and Anger was associated with overall PTSD and Hyperarousal. Immoderation was related to Avoidance and Numbing, and Vulnerability was associated with Avoidance. However, Self-consciousness was not strongly associated with PTSD. Examining facet associations after controlling for depression uncovered a more nuanced relationship between Neuroticism facets and PTSD dimensions.

Third, within domains and traits, some facets were more related to PTSD dimensions than others. For instance, in psychoticism, perceptual dysregulation was more linked to PTSD than unusual beliefs & experiences and eccentricity. Perceptual dysregulation was the most significantly related facet to PTSD in the PID-5 after controlling for depression. Though psychoticism has been shown to be related to overall PTSD in the literature (e.g., James et al., 2015; Holeva et al., 2001), associations between PTSD and facets of psychoticism have not been studied.

Perceptual dysregulation is related to dissociation (e.g., Ashton et al., 2012). Research has suggested that PTSD contains a dissociative component, such as derealization and depersonalization (e.g., Dalenberg & Carlson, 2012). Additionally, the *DSM-5* (APA, 2013) contains a dissociative subtype of PTSD. Research has found evidence for this dissociative subtype of PTSD (e.g., Ginzburg et al., 2006; Lanius et al., 2010). Thus, it is not surprising that perceptual dysregulation is associated with PTSD dimensions. These findings underscore the importance of examining the facet level associations in order to see which facets of a personality trait are related to PTSD, and which are not.

Fourth, some personality traits and facets were not related to PTSD dimensions. In the IPIP, openness and associated facets (adventurousness, imagination, artistic interests, liberalism, and intellect) were not related to PTSD. In fact, most IPIP facets and traits failed to reach significance after controlling for depression. In the PID-5, antagonism and associated facets (manipulativeness, deceitfulness, and grandiosity) were not significantly related to most PTSD dimensions. Antagonism did have a significant relationship with hyperarousal in the SONA sample after controlling for depression, which underscores the importance of examining individual PTSD symptoms.

It was surprising that antagonism was not related to PTSD because antagonism reflects low agreeableness. We would expect that antagonism would thus be positively correlated with PTSD. Previous research has mixed findings, with some studies showing a relationship between antagonism and PTSD symptoms (e.g., Zelazny & Simms, 2015), while others have found that antagonism is less related than other personality traits (e.g., James et al., 2015).

The results of the current study highlight the importance of examining personality associations with PTSD at the facet level. A trait or domain may be related to PTSD, but not all facets of this domain are equally related. For example, the trust facet was more related than other facets of agreeableness (cooperation, morality, altruism, sympathy, and modesty) to PTSD symptoms. Furthermore, it is necessary to examine which traits are associated with individual PTSD symptoms because one personality trait may be associated with some symptoms but not others. For instance, anger was associated with hyperarousal, but not other PTSD dimensions after controlling for depression. With regard to unique dimensions of PTSD (i.e., intrusions and avoidance), there were a few unique associations (e.g., vulnerability and avoidance), but these

dimensions generally had the same correlation patterns as overall PTSD. Thus, the following section focuses on clinical implications for personality traits and overall PTSD.

### Clinical Implications

The results of this study inform clinical practice, particularly for targeting personality traits in treatment. In a meta-analysis, Roberts and colleagues (2015) found that therapeutic interventions change Big 5 personality traits, including extraversion, agreeableness, conscientiousness, and emotional stability (inverse of neuroticism) ( $d = .19 - .59$ ). Emotional stability had the highest effect size. Neuroticism and related facets were highly related to PTSD dimensions in the present study, so this finding is promising. Various forms of therapy showed high efficacy for changing personality traits, including cognitive behavioral, supportive, psychodynamic, and eclectic therapies ( $d = .49$  to  $.61$ ). This meta-analysis concluded that all forms of therapy were equally effective in changing personality.

Clinicians should be aware of personality traits that are associated with PTSD dimensions, such as trust. Clinicians may monitor patients' personality traits and PTSD symptoms on a regular basis, and may focus on certain personality traits in their treatment. For example, since the trust facet was negatively associated with PTSD symptoms, therapists can work with patients who have PTSD on building trust. Trust may be shattered after experiencing a traumatic event, so re-building healthy levels of trust may decrease a patient's PTSD symptoms. Alternatively, high levels of trust may protect people from developing PTSD after experiencing a traumatic event. Trust is a facet of agreeableness, which has shown increases in response to clinical interventions (Roberts et al., 2015). Since there is no one best treatment for personality change (Roberts et al., 2015), a variety of techniques may be used to increase levels of trust. For

example, clinicians can focus on a patient's interpersonal relationships, exploring times when the patient's trust was betrayed and how that can impact current relationships. Interpersonal skills training and challenging unrealistic expectations of other people may be beneficial as well.

High levels of dutifulness, a facet of conscientiousness, were also negatively related to PTSD. Behavioral interventions suggested for targeting disinhibition, which is related to low conscientiousness (Hopwood, 2017), may work to increase dutifulness levels. For example, contingency management may be used, which involves giving patients rewards to reinforce positive behaviors. Motivational interviewing can also help clients to change their behaviors and help them become more responsible. Additionally, patients can work on time management and organizational skills in treatment.

Other personality facets, such as anxiousness, perceptual dysregulation and withdrawal, were positively related to PTSD. High levels of these traits may be risk factors for developing PTSD. These traits may also be worked on in treatment. For anxiousness, treatment may include exposure to anxiety-inducing stimuli in the environment and reframing of potential harm in stimuli (Hopwood, 2017). For withdrawal, training in interpersonal skills may be helpful as well, which includes identifying domains where an individual is lacking in social skills and helping him or her change her behavior (Hopwood, 2017). Perceptual dysregulation was also positively related to PTSD symptoms. Cognitive-behavioral treatment may increase patients' awareness of their distorted perceptions of reality and help them develop a more accurate interpretation of their inner and outer world via techniques such as thought records and reframing (Hopwood, 2017).

Stability of personality traits is a subject of debate in the literature, however, there is some evidence of personality change over time. Research suggests that infant temperament is not



very stable, and only modestly predicts adult personality (Costa et al., 2000). In a review, trait consistency increased over the life course; from test-retest correlations of .31 in childhood to .74 between ages 50 and 70 (Roberts & DelVecchio, 2000). One study found that personality traits were stable (estimated stability .60-.90), but personality disorder symptoms were less stable over time, with an estimated stability of .25-.65 (ex. Paranoid, Schizoid, etc.) (Hopwood et al., 2013). Research suggests that personality traits become more stable in early adulthood (i.e., more stable between age 21-24 than between age 18-21) (Vaidya, Gray, Haig, Mroczek, & Watson, 2008). Similarly, another study suggests that levels of agreeableness, conscientiousness, and openness increase while neuroticism decreases in individuals over four years of college, between ages 18-22 (Robins, Fraley, Roberts, & Trzesniewski, 2001). These findings suggest that there is room for change in personality development.

The question of whether personality traits are a predisposition to developing PTSD or whether personality can change as a result of trauma has been debated in the literature. For instance, low levels of trust can predispose someone to developing PTSD symptoms (e.g., lacking social support to deal with traumatic sequelae), or encountering trauma can cause someone to lose trust in the world around them. The essentialist model ascertains that personality is an internal characteristic that is genetically determined and is not influenced by the environment (McCrae et al., 2000). In contrast, contextualist models argue that personality is influenced by situational characteristics and can change across contexts (e.g., Lewis, 2001). More specific to psychopathology, the vulnerability model suggests that personality traits may be risk factors for psychopathology (Clark, 2005). The pathoplasty model, on the other hand, suggests that psychopathology can result in personality change (Clark, 2005). The present study is cross-sectional, so it does not answer the question of whether personality traits are a

predisposition for PTSD, or whether PTSD can fundamentally alter personality traits.

Longitudinal, prospective studies are needed to elucidate the relationship between personality traits and PTSD, determine whether personality traits are a risk factor or outcome of psychopathology, and whether PTSD can result in personality change.

### Limitations

Limitations of this study included its cross-sectional nature. Personality and PTSD symptoms were measured concurrently, so no causal relationship between personality traits and PTSD symptoms could be established. Furthermore, personality traits and PTSD symptoms were measured via self-report. A clinical interview, such as the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al., 2013), is needed to diagnose the presence of PTSD symptoms. Additionally, the students in the undergraduate sample took the surveys online. There is a high chance of participants taking the survey carelessly or not paying attention, especially since the survey was lengthy.

### Summary and Future Directions

This study is unique because it assessed the personality traits related to individual PTSD symptoms at the facet level, controlling for depression, in two different samples. While Neuroticism was associated with all PTSD dimensions in bivariate correlations, it was only related to two dimensions of PTSD after controlling for depression. Certain facets of Neuroticism showed nuanced relationships to PTSD dimensions after controlling for depression. Other personality traits, such as Trust and Agreeableness, emerged as significantly related to PTSD dimensions after controlling for depression. There was little discrimination between

personality and PTSD dimensions in the PID-5, with most facets and domains significantly related to PTSD. Openness and Antagonism were not significantly related to PTSD. Within personality domains and traits, facets were not equally related to PTSD, highlighting the importance of examining personality facet associations with PTSD.

Future research can examine personality traits longitudinally. Trauma-exposed participants can be followed to measure PTSD symptoms and personality trait levels over time. Furthermore, to determine whether personality changes after trauma exposure, prospective studies of personality associations with trauma can be conducted by measuring personality traits before and after experiencing events with a high likelihood of trauma exposure, such as combat. More research on personality trait change for individuals with PTSD following clinical interventions is also needed; personality traits and PTSD symptoms can be measured pre- and post-intervention. Different interventions can be compared with regards to the personality traits they target in order to inform clinicians of best practices for different personality traits and facets.

Table 1

*Demographic Variables for SONA Undergraduate Sample (N = 707) and WTC Sample (N = 536)*

	SONA	WTC
Age, M (SD); Age on 9/11/2001, M (SD)	20.16 (2.77)	40.68 (8.90)
Gender, % (n)	Male	27.9 (197)
	Female	71.1 (503)
Race, % (n)	Caucasian	64.8 (458)
	African American	15.7 (111)
	Asian	6.1 (43)
	American Indian	4 (28)
	Native Hawaiian or Pacific Islander	1 (7)
	Multiracial	--
	Other	14.3 (101)
	Unknown	--
Ethnicity, % (n)	Not Hispanic or Latino	66.6 (471)
	Hispanic or Latino	28.9 (204)
Marital Status, % (n)	Single	97.5 (666)
	Married	2.4 (17)
	Unknown or Other	--
Education Classification, % (n)	Less than High School	0 (0)
	High School	0 (0)
	Some College	98.9 (699)
	College Graduate	.6 (4)
	Graduate Degree	0 (0)
IDAS General Depression Score, M (SD)	48.05 (16.23)	--
PHQ-9 Total Depression Score, M (SD)	--	6.87 (6.68)
PTSD Score, M (SD)	Overall PTSD	18.97 (18.39)
	Intrusions	4.50 (4.96)
	Avoidance	2.53 (2.65)
	Numbing	6.42 (7.15)
	Hyperarousal	5.51 (5.81)

*(table continues)*

	SONA	WTC
Neuroticism	177.38 (36.61)	--
Extraversion	197.06 (30.44)	--
Openness	216.39 (24.97)	--
Agreeableness	218.26 (28.44)	--
Conscientiousness	214.75 (29.21)	--
Anxiety	31.84 (7.51)	--
Anger	28.06 (8.17)	--
Depression	26.64 (9.66)	--
Self-Consciousness	30.92 (7.24)	--
Immoderation	32.34 (6.38)	--
Vulnerability	27.66 (7.69)	--
Friendliness	34.47 (7.72)	--
Gregariousness	30.56 (8.14)	--
Assertiveness	32.38 (7.19)	--
Activity Level	29.28 (4.67)	--
Excitement-Seeking	32.39 (6.61)	--
Cheerfulness	37.96 (6.52)	--
Imagination	36.68 (6.24)	--
Artistic Interests	40.57 (6.36)	--
Emotionality	37.49 (6.19)	--
Adventurousness	33.51 (6.10)	--
Intellect	36.23 (6.51)	--
Liberalness	31.71 (7.42)	--
Trust	33.71 (7.42)	--
Morality	39.20 (6.85)	--
Altruism	40.37 (6.24)	--
Cooperation	35.54 (6.55)	--
Modesty	33.17 (6.29)	--
Sympathy	36.32 (6.29)	--
Self-Efficacy	37.39 (6.01)	--
Order	34.94 (6.85)	--
Dutifulness	40.00 (5.88)	--
Achievement Striving	37.52 (6.17)	--

IPIP Score, M  
(SD)

(table continues)

	SONA	WTC
Self-Discipline	31.94 (7.57)	--
Cautiousness	33.04 (7.01)	--
Negative Affectivity	1.28 (.69)	.81 (.65)
Detachment	.88 (.56)	.84 (.72)
Antagonism	.74 (.57)	.44 (.40)
Disinhibition	.86 (.54)	.62 (.55)
Psychoticism	.87 (.63)	.44 (.51)
Anhedonia	.99 (.67)	1.05 (.85)
Anxiousness	1.58 (.81)	1.10 (.85)
Depressivity	.76 (.75)	.56 (.67)
Emotional Lability	1.23 (.85)	.81 (.77)
Hostility	.97 (.67)	.87 (.71)
Perseveration	1.00 (.67)	.62 (.61)
Rigid Perfectionism	1.09 (.73)	.86 (.68)
Separation Insecurity	1.04 (.75)	.55 (.65)
Submissiveness	1.27 (.77)	.81 (.69)
Suspiciousness	1.13 (.56)	.89 (.55)
Withdrawal	1.04 (.69)	.96 (.88)
Attention Seeking	.89 (.70)	.43 (.53)
Callousness	.48 (.53)	.36 (.38)
Deceitfulness	.72 (.62)	.30 (.37)
Grandiosity	.65 (.57)	.50 (.49)
Manipulativeness	.88 (.77)	.52 (.54)
Intimacy Avoidance	.62 (.66)	.53 (.66)
Restricted Affectivity	.99 (.72)	.93 (.66)
Distractibility	1.12 (.71)	.85 (.81)
Eccentricity	1.14 (.85)	.53 (.68)
Impulsivity	.89 (.72)	.67 (.64)
Irresponsibility	.56 (.52)	.36 (.45)
Perceptual Dysregulation	.72 (.59)	.41 (.51)
Risk Taking	1.26 (.54)	1.20 (.52)
Unusual Beliefs & Experiences	.73 (.66)	.39 (.52)

PID-5 Score, M  
(SD)

Table 2

*IPIP Personality Correlations with PTSD Symptoms in SONA Undergraduate Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Neuroticism	Depression	<b>.473</b>	<b>.330</b>	<b>.331</b>	<b>.534</b>	<b>.419</b>
<b>Neuroticism</b>		<b>.428</b>	<b>.331</b>	<b>.346</b>	<b>.447</b>	<b>.375</b>
Agreeableness	Trust	<b>-.371</b>	<b>-.278</b>	<b>-.300</b>	<b>-.377</b>	<b>-.334</b>
Neuroticism	Vulnerability	<b>.365</b>	<b>.311</b>	<b>.304</b>	<b>.354</b>	<b>.322</b>
Neuroticism	Anger	<b>.347</b>	<b>.279</b>	<b>.271</b>	<b>.332</b>	<b>.339</b>
Neuroticism	Anxiety	<b>.321</b>	<b>.267</b>	<b>.282</b>	<b>.322</b>	<b>.267</b>
Conscientiousness	Self-Efficacy	<b>-.286</b>	<b>-.223</b>	<b>-.183</b>	<b>-.306</b>	<b>-.262</b>
Extraversion	Friendliness	<b>-.279</b>	<b>-.197</b>	<b>-.209</b>	<b>-.288</b>	<b>-.253</b>
Extraversion	Cheerfulness	<b>-.274</b>	<b>-.226</b>	<b>-.209</b>	<b>-.289</b>	<b>-.226</b>
Conscientiousness	Dutifulness	<b>-.268</b>	<b>-.215</b>	<b>-.162</b>	<b>-.27</b>	<b>-.268</b>
<b>Conscientiousness</b>		<b>-.266</b>	<b>-.196</b>	<b>-.169</b>	<b>-.275</b>	<b>-.273</b>
Neuroticism	Immoderation	<b>.244</b>	<b>.167</b>	<b>.219</b>	<b>.267</b>	<b>.216</b>
<b>Agreeableness</b>		<b>-.235</b>	<b>-.196</b>	<b>-.153</b>	<b>-.223</b>	<b>-.234</b>
Conscientiousness	Self-Discipline	<b>-.221</b>	<b>-.126</b>	<b>-.143</b>	<b>-.243</b>	<b>-.237</b>
<b>Extraversion</b>		<b>-.209</b>	<b>-.151</b>	<b>-.175</b>	<b>-.229</b>	<b>-.16</b>
Agreeableness	Cooperation	<b>-.204</b>	<b>-.184</b>	<b>-.138</b>	<b>-.185</b>	<b>-.206</b>
Agreeableness	Morality	<b>-.202</b>	<b>-.158</b>	<b>-.104</b>	<b>-.197</b>	<b>-.225</b>
Extraversion	Gregariousness	<b>-.199</b>	<b>-.144</b>	<b>-.159</b>	<b>-.204</b>	<b>-.173</b>
Neuroticism	Self-Consciousness	<b>.196</b>	<b>.147</b>	<b>.181</b>	<b>.223</b>	<b>.143</b>
Conscientiousness	Achievement-Striving	<b>-.184</b>	<b>-.109</b>	<b>-.108</b>	<b>-.218</b>	<b>-.176</b>

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Agreeableness	Altruism	<b>-.176</b>	<b>-.141</b>	<b>-.102</b>	<b>-.182</b>	<b>-.168</b>
Conscientiousness	Cautiousness	<b>-.162</b>	<b>-.16</b>	<b>-.102</b>	<b>-.142</b>	<b>-.177</b>
Openness	Adventurousness	<b>-.151</b>	<b>-.127</b>	<b>-.146</b>	<b>-.146</b>	<b>-.114</b>
Extraversion	Assertiveness	<b>-.127</b>	-.09	<b>-.122</b>	<b>-.145</b>	-.076
Openness	Liberalism	.085	.027	.067	<b>.110</b>	<b>.104</b>
Conscientiousness	Order	-.077	-.053	-.066	-.062	<b>-.106</b>
Openness	Emotionality	.068	.043	.084	.077	.054
Openness	Imagination	.061	.014	.047	.077	.068
Openness	Intellect	-.053	-.081	-.046	-.040	-.031
Agreeableness	Sympathy	-.051	-.045	-.038	-.032	-.054
Agreeableness	Modesty	.035	-.005	.052	.058	.017
Openness	Artistic Interests	-.030	-.048	.002	-.012	-.022
Extraversion	Activity Level	.019	.067	.036	-.033	.028
<b>Openness</b>		<b>-.009</b>	<b>-.046</b>	<b>.001</b>	<b>.014</b>	<b>.012</b>
Extraversion	Excitement-Seeking	.006	-.007	-.042	-.001	.054

Note. Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms.



Table 3

*IPIP Multiple Regression Betas in SONA Undergraduate Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Agreeableness	Trust	<b>-.183</b>	<b>-.120</b>	<b>-.171</b>	<b>-.196</b>	<b>-.155</b>
<b>Agreeableness</b>		<b>-.119</b>	<b>-.099</b>	-.071	<b>-.113</b>	<b>-.125</b>
Neuroticism	Depression	<b>.114</b>	-.012	.062	<b>.263</b>	.026
Neuroticism	Anger	<b>.100</b>	.073	.095	.093	<b>.105</b>
<b>Neuroticism</b>		.088	.039	<b>.124</b>	<b>.139</b>	.021
Conscientiousness	Dutifulness	-.088	-.065	-.030	-.099	-.099
Agreeableness	Cooperation	-.081	-.078	-.046	-.069	-.091
Neuroticism	Immoderation	.076	.026	<b>.101</b>	<b>.103</b>	.050
Agreeableness	Morality	-.074	-.049	-.011	-.075	<b>-.104</b>
Neuroticism	Vulnerability	.069	.076	<b>.106</b>	.065	.027
Extraversion	Friendliness	-.067	-.021	-.058	-.083	-.050
Agreeableness	Altruism	-.066	-.050	-.022	-.079	-.063
Agreeableness	Modesty	-.061	-.084	-.020	-.034	-.073
Extraversion	Excitement Seeking	.049	.027	-.011	.042	.096
Extraversion	Activity Level	.048	.092	.057	-.006	.054
Agreeableness	Sympathy	-.047	-.041	-.035	-.031	-.049
Extraversion	Cheerfulness	-.043	-.035	-.042	-.070	.002
Conscientiousness	Cautiousness	-.042	-.057	-.009	-.026	-.062
Neuroticism	Self-Consciousness	-.036	-.045	.017	.002	-.086
<b>Conscientiousness</b>		-.031	.003	.006	-.052	-.052

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Extraversion	Assertiveness	.026	.033	-.015	.003	.071
Neuroticism	Anxiousness	.023	.026	.083	.034	-.033
Extraversion	Gregariousness	-.022	.002	-.035	-.033	-.006
Conscientiousness	Self-Discipline	.022	.085	.035	-.008	-.009
Conscientiousness	Self-Efficacy	-.021	-.002	.020	-.056	-.004
Openness	Emotionality	.018	.001	.045	.030	.007
Conscientiousness	Achievement Striving	-.010	.033	.016	-.050	-.006
Openness	Adventurousness	-.008	-.010	-.043	-.008	.023
Openness	Imagination	.005	-.031	.006	.020	.012
<b>Extraversion</b>		-.004	.020	-.028	-.034	.037
Conscientiousness	Order	.003	.016	-.005	.016	-.030
<b>Openness</b>		.002	-.037	.008	.024	.020
Openness	Liberalism	-.002	-.044	.003	.024	.018
<b>Openness</b>	Artistic Interests	.002	-.022	.028	.019	.005
Openness	Intellect	-.001	-.035	-.007	.010	.019

Note. Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms

Table 4

*Average PID-5 Personality Correlations with PTSD Symptoms in SONA Undergraduate Sample and WTC Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
	Depressivity	<b>.600</b>	<b>.496</b>	<b>.437</b>	<b>.633</b>	<b>.548</b>
Detachment	Anhedonia	<b>.587</b>	<b>.466</b>	<b>.449</b>	<b>.622</b>	<b>.538</b>
<b>Negative Affect</b>		<b>.580</b>	<b>.505</b>	<b>.459</b>	<b>.571</b>	<b>.539</b>
<b>Detachment</b>		<b>.578</b>	<b>.485</b>	<b>.462</b>	<b>.588</b>	<b>.534</b>
Psychoticism	Perceptual Dysregulation	<b>.577</b>	<b>.519</b>	<b>.434</b>	<b>.563</b>	<b>.536</b>
Negative Affect	Anxiousness	<b>.576</b>	<b>.491</b>	<b>.465</b>	<b>.563</b>	<b>.543</b>
	Emotional Lability	<b>.554</b>	<b>.496</b>	<b>.430</b>	<b>.532</b>	<b>.523</b>
<b>Disinhibition</b>		<b>.539</b>	<b>.446</b>	<b>.408</b>	<b>.545</b>	<b>.509</b>
Disinhibition	Distractibility	<b>.515</b>	<b>.423</b>	<b>.372</b>	<b>.515</b>	<b>.512</b>
Detachment	Withdrawal	<b>.511</b>	<b>.420</b>	<b>.433</b>	<b>.518</b>	<b>.467</b>
	Perseveration	<b>.498</b>	<b>.427</b>	<b>.400</b>	<b>.494</b>	<b>.458</b>
<b>Psychoticism</b>		<b>.496</b>	<b>.441</b>	<b>.357</b>	<b>.489</b>	<b>.468</b>
	Hostility	<b>.486</b>	<b>.405</b>	<b>.354</b>	<b>.464</b>	<b>.497</b>
	Suspiciousness	<b>.460</b>	<b>.382</b>	<b>.355</b>	<b>.453</b>	<b>.439</b>
Psychoticism	Eccentricity	<b>.449</b>	<b>.374</b>	<b>.332</b>	<b>.455</b>	<b>.430</b>
Psychoticism	Unusual Beliefs & Experiences	<b>.436</b>	<b>.396</b>	<b>.327</b>	<b>.417</b>	<b>.405</b>
Disinhibition	Irresponsibility	<b>.397</b>	<b>.342</b>	<b>.290</b>	<b>.396</b>	<b>.379</b>
Detachment	Intimacy Avoidance	<b>.392</b>	<b>.343</b>	<b>.323</b>	<b>.400</b>	<b>.345</b>

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Negative Affect	Separation Insecurity	<b>.365</b>	<b>.318</b>	<b>.281</b>	<b>.377</b>	<b>.323</b>
Disinhibition	Impulsivity	<b>.363</b>	<b>.322</b>	<b>.255</b>	<b>.362</b>	<b>.344</b>
	Restricted Affectivity	<b>.339</b>	<b>.279</b>	<b>.269</b>	<b>.355</b>	<b>.305</b>
	Rigid Perfectionism	<b>.337</b>	<b>.286</b>	<b>.260</b>	<b>.325</b>	<b>.321</b>
	Callousness	<b>.306</b>	<b>.251</b>	<b>.201</b>	<b>.307</b>	<b>.302</b>
	Submissiveness	<b>.225</b>	<b>.173</b>	<b>.227</b>	<b>.239</b>	<b>.186</b>
Antagonism	Deceitfulness	<b>.210</b>	<b>.160</b>	<b>.150</b>	<b>.207</b>	<b>.214</b>
<b>Antagonism</b>		<b>.181</b>	.144	.122	<b>.172</b>	<b>.190</b>
	Attention Seeking	<b>.163</b>	.127	.097	<b>.169</b>	.167
Antagonism	Grandiosity	<b>.140</b>	<b>.128</b>	.085	<b>.129</b>	<b>.135</b>
Antagonism	Manipulativeness	.131	.092	.092	.118	.151
	Risk Taking	.068	.036	.017	.077	.084

*Note.* Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms

Table 5

*Average PID-5 Multiple Regressions Betas in SONA Undergraduate Sample and WTC Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Psychoticism	Perceptual Dysregulation	<b>.234</b>	<b>.258</b>	<b>.159</b>	<b>.232</b>	<b>.180</b>
<b>Detachment</b>		<b>.225</b>	<b>.183</b>	<b>.215</b>	<b>.270</b>	<b>.151</b>
Detachment	Withdrawal	<b>.200</b>	<b>.162</b>	<b>.210</b>	<b>.218</b>	<b>.148</b>
	Depressivity	<b>.199</b>	<b>.150</b>	<b>.101</b>	<b>.278</b>	<b>.135</b>
<b>Psychoticism</b>		<b>.196</b>	<b>.197</b>	<b>.132</b>	<b>.198</b>	<b>.164</b>
<b>Negative Affect</b>		<b>.194</b>	<b>.203</b>	<b>.173</b>	<b>.194</b>	<b>.140</b>
Detachment	Anhedonia	<b>.189</b>	<b>.115</b>	<b>.154</b>	<b>.286</b>	<b>.105</b>
Negative Affect	Emotional Lability	<b>.182</b>	<b>.206</b>	<b>.144</b>	<b>.163</b>	<b>.149</b>
Negative Affect	Anxiousness	<b>.171</b>	<b>.157</b>	<b>.178</b>	<b>.168</b>	<b>.134</b>
Psychoticism	Unusual Beliefs & Experiences	<b>.168</b>	<b>.170</b>	<b>.126</b>	<b>.160</b>	<b>.141</b>
	Suspiciousness	<b>.165</b>	<b>.137</b>	<b>.126</b>	<b>.152</b>	<b>.160</b>
	Perseveration	<b>.142</b>	<b>.147</b>	<b>.126</b>	<b>.137</b>	<b>.106</b>
<b>Disinhibition</b>		<b>.140</b>	<b>.135</b>	<b>.061</b>	<b>.149</b>	<b>.130</b>
	Hostility	<b>.139</b>	<b>.111</b>	<b>.074</b>	<b>.121</b>	<b>.170</b>
Detachment	Intimacy Avoidance	<b>.136</b>	<b>.141</b>	<b>.132</b>	<b>.147</b>	<b>.086</b>
	Restricted Affectivity	<b>.124</b>	<b>.098</b>	<b>.095</b>	<b>.160</b>	<b>.086</b>
Disinhibition	Distractibility	<b>.122</b>	<b>.111</b>	<b>.053</b>	<b>.139</b>	<b>.117</b>
Psychoticism	Eccentricity	<b>.120</b>	<b>.102</b>	<b>.069</b>	<b>.132</b>	<b>.112</b>
	Callousness	<b>.106</b>	<b>.079</b>	<b>.039</b>	<b>.112</b>	<b>.118</b>
Negative Affect	Separation Insecurity	<b>.100</b>	<b>.109</b>	<b>.083</b>	<b>.115</b>	<b>.051</b>

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Disinhibition	Impulsivity	.098	.098	.045	.089	.098
Disinhibition	Irresponsibility	.088	.082	.044	.096	.080
	Rigid Perfectionism	.087	.092	.060	.076	.076
Antagonism	Deceitfulness	.064	-.001	-.001	.031	.044
	Attention Seeking	.048	.032	.000	.048	.068
Antagonism	Grandiosity	.048	.046	.010	.048	.050
<b>Antagonism</b>		.037	.020	.006	.035	.056
	Submissiveness	.032	.019	.088	.034	.001
Antagonism	Manipulativeness	.025	.003	.011	.015	.054
	Risk Taking	.008	-.019	-.037	.013	.042

*Note.* Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms.

Table 6

*PID-5 Personality Correlations with PTSD Symptoms in SONA Undergraduate Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
	Depressivity	<b>.518</b>	<b>.388</b>	<b>.356</b>	<b>.563</b>	<b>.467</b>
Psychoticism	Perceptual Dysregulation	<b>.489</b>	<b>.411</b>	<b>.352</b>	<b>.471</b>	<b>.470</b>
<b>Negative Affect</b>		<b>.471</b>	<b>.386</b>	<b>.378</b>	<b>.470</b>	<b>.424</b>
<b>Psychoticism</b>		<b>.468</b>	<b>.382</b>	<b>.346</b>	<b>.457</b>	<b>.449</b>
Detachment	Anhedonia	<b>.456</b>	<b>.318</b>	<b>.328</b>	<b>.500</b>	<b>.411</b>
<b>Detachment</b>		<b>.453</b>	<b>.349</b>	<b>.343</b>	<b>.459</b>	<b>.417</b>
Negative Affect	Anxiousness	<b>.451</b>	<b>.352</b>	<b>.378</b>	<b>.449</b>	<b>.413</b>
	Perseveration	<b>.445</b>	<b>.379</b>	<b>.358</b>	<b>.438</b>	<b>.394</b>
	Suspiciousness	<b>.438</b>	<b>.351</b>	<b>.331</b>	<b>.434</b>	<b>.404</b>
Negative Affect	Emotional Lability	<b>.427</b>	<b>.364</b>	<b>.321</b>	<b>.415</b>	<b>.398</b>
	Hostility	<b>.402</b>	<b>.323</b>	<b>.310</b>	<b>.375</b>	<b>.404</b>
<b>Disinhibition</b>		<b>.400</b>	<b>.331</b>	<b>.266</b>	<b>.392</b>	<b>.392</b>
Psychoticism	Unusual Beliefs & Experiences	<b>.396</b>	<b>.325</b>	<b>.300</b>	<b>.385</b>	<b>.373</b>
Detachment	Withdrawal	<b>.392</b>	<b>.312</b>	<b>.335</b>	<b>.377</b>	<b>.356</b>
Psychoticism	Eccentricity	<b>.387</b>	<b>.302</b>	<b>.288</b>	<b>.388</b>	<b>.376</b>
Disinhibition	Distractibility	<b>.368</b>	<b>.274</b>	<b>.247</b>	<b>.365</b>	<b>.386</b>
Disinhibition	Irresponsibility	<b>.329</b>	<b>.276</b>	<b>.211</b>	<b>.325</b>	<b>.319</b>
Negative Affect	Separation Insecurity	<b>.325</b>	<b>.269</b>	<b>.266</b>	<b>.338</b>	<b>.266</b>

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
	Rigid Perfectionism	<b>.303</b>	<b>.243</b>	<b>.226</b>	<b>.289</b>	<b>.288</b>
Disinhibition	Impulsivity	<b>.297</b>	<b>.267</b>	<b>.201</b>	<b>.289</b>	<b>.270</b>
Detachment	Intimacy Avoidance	<b>.285</b>	<b>.252</b>	<b>.200</b>	<b>.271</b>	<b>.269</b>
Antagonism	Deceitfulness	<b>.268</b>	<b>.213</b>	<b>.182</b>	<b>.270</b>	<b>.266</b>
	Callousness	<b>.258</b>	<b>.209</b>	<b>.164</b>	<b>.252</b>	<b>.251</b>
<b>Antagonism</b>		<b>.245</b>	<b>.205</b>	<b>.166</b>	<b>.231</b>	<b>.253</b>
	Attention Seeking	<b>.223</b>	<b>.175</b>	<b>.129</b>	<b>.222</b>	<b>.238</b>
Antagonism	Manipulativeness	<b>.214</b>	<b>.170</b>	<b>.142</b>	<b>.196</b>	<b>.244</b>
	Restricted Affectivity	<b>.208</b>	<b>.148</b>	<b>.149</b>	<b>.216</b>	<b>.203</b>
	Submissiveness	<b>.204</b>	<b>.151</b>	<b>.215</b>	<b>.226</b>	<b>.149</b>
Antagonism	Grandiosity	<b>.161</b>	<b>.154</b>	<b>.110</b>	<b>.142</b>	<b>.149</b>
	Risk Taking	<b>.101</b>	<b>.078</b>	<b>.025</b>	<b>.107</b>	<b>.119</b>

*Note.* Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms.



Table 7

*PID-5 Multiple Regressions Betas in SONA Undergraduate Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Psychoticism	Perceptual Dysregulation	<b>.245</b>	<b>.215</b>	<b>.174</b>	<b>.234</b>	<b>.234</b>
<b>Psychoticism</b>		<b>.230</b>	<b>.186</b>	<b>.176</b>	<b>.228</b>	<b>.219</b>
	Suspiciousness	<b>.224</b>	<b>.175</b>	<b>.180</b>	<b>.225</b>	<b>.191</b>
	Depression	<b>.218</b>	<b>.101</b>	<b>.107</b>	<b>.341</b>	<b>.146</b>
Psychoticism	Unusual Beliefs & Experiences	<b>.201</b>	<b>.165</b>	<b>.162</b>	<b>.197</b>	<b>.184</b>
<b>Detachment</b>		<b>.185</b>	<b>.116</b>	<b>.152</b>	<b>.213</b>	<b>.152</b>
	Perseveration	<b>.175</b>	<b>.165</b>	<b>.179</b>	<b>.178</b>	<b>.120</b>
Detachment	Withdrawal	<b>.175</b>	<b>.126</b>	<b>.187</b>	<b>.170</b>	<b>.146</b>
	Hostility	<b>.156</b>	<b>.115</b>	<b>.142</b>	<b>.132</b>	<b>.174</b>
<b>Neg Affect</b>		<b>.156</b>	<b>.134</b>	<b>.175</b>	<b>.176</b>	<b>.092</b>
Psychoticism	Eccentricity	<b>.154</b>	<b>.109</b>	<b>.119</b>	<b>.165</b>	<b>.152</b>
<b>Disinhibition</b>		<b>.138</b>	<b>.118</b>	<b>.064</b>	<b>.138</b>	<b>.142</b>
Negative Affect	Emotional Lability	<b>.136</b>	<b>.132</b>	<b>.118</b>	<b>.134</b>	<b>.111</b>
	Callousness	<b>.134</b>	<b>.103</b>	<b>.072</b>	<b>.135</b>	<b>.136</b>
Disinhibition	Impulsivity	<b>.130</b>	<b>.134</b>	<b>.076</b>	<b>.127</b>	<b>.106</b>
Detachment	Anhedonia	<b>.126</b>	<b>.001</b>	<b>.080</b>	<b>.230</b>	<b>.072</b>
Disinhibition	Irresponsibility	<b>.113</b>	<b>.098</b>	<b>.040</b>	<b>.119</b>	<b>.115</b>
	Attention Seeking	<b>.112</b>	<b>.084</b>	<b>.050</b>	<b>.114</b>	<b>.129</b>
Negative Affect	Anxiousness	<b>.111</b>	<b>.066</b>	<b>.171</b>	<b>.129</b>	<b>.064</b>
Detachment	Intimacy Avoidance	<b>.111</b>	<b>.107</b>	<b>.068</b>	<b>.105</b>	<b>.103</b>

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
	Rigid Perfectionism	<b>.103</b>	.078	.084	.096	.098
Negative Affect	Separation Insecurity	.099	.088	<b>.105</b>	<b>.123</b>	.036
<b>Antagonism</b>		.096	.082	.056	.086	<b>.112</b>
	Restricted Affectivity	.091	.044	.059	<b>.102</b>	.095
Antagonism	Grandiosity	.090	.095	.061	.073	.084
Antagonism	Deceitfulness	.088	.064	.052	.096	.094
Antagonism	Manipulativeness	.073	.050	.036	.060	<b>.110</b>
	Risk Taking	.067	.051	.004	.075	.085
Disinhibition	Distractibility	.060	.012	.015	.064	<b>.104</b>
	Submissiveness	.035	.015	.094	.060	-.021

*Note.* Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms.

Table 8

*PID-5 Personality Correlations with PTSD Symptoms in WTC Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Detachment	Anhedonia	<b>.718</b>	<b>.614</b>	<b>.570</b>	<b>.744</b>	<b>.665</b>
Negative Affect	Anxiousness	<b>.701</b>	<b>.630</b>	<b>.551</b>	<b>.677</b>	<b>.672</b>
<b>Negative Affect</b>		<b>.688</b>	<b>.624</b>	<b>.539</b>	<b>.671</b>	<b>.653</b>
<b>Detachment</b>		<b>.687</b>	<b>.587</b>	<b>.578</b>	<b>.718</b>	<b>.618</b>
	Depressivity	<b>.682</b>	<b>.603</b>	<b>.517</b>	<b>.703</b>	<b>.629</b>
	Emotional Lability	<b>.681</b>	<b>.627</b>	<b>.539</b>	<b>.649</b>	<b>.648</b>
Psychoticism	Perceptual Dysregulation	<b>.664</b>	<b>.626</b>	<b>.516</b>	<b>.654</b>	<b>.601</b>
Disinhibition	Distractibility	<b>.661</b>	<b>.572</b>	<b>.496</b>	<b>.665</b>	<b>.637</b>
Detachment	Withdrawal	<b>.630</b>	<b>.527</b>	<b>.530</b>	<b>.658</b>	<b>.578</b>
<b>Disinhibition</b>		<b>.625</b>	<b>.542</b>	<b>.472</b>	<b>.631</b>	<b>.601</b>
<b>Psychoticism</b>		<b>.592</b>	<b>.550</b>	<b>.447</b>	<b>.585</b>	<b>.544</b>
	Hostility	<b>.570</b>	<b>.486</b>	<b>.398</b>	<b>.552</b>	<b>.590</b>
	Perseveration	<b>.550</b>	<b>.475</b>	<b>.441</b>	<b>.550</b>	<b>.521</b>
Psychoticism	Eccentricity	<b>.511</b>	<b>.445</b>	<b>.375</b>	<b>.522</b>	<b>.483</b>
Detachment	Intimacy Avoidance	<b>.499</b>	<b>.433</b>	<b>.446</b>	<b>.528</b>	<b>.420</b>
	Suspiciousness	<b>.481</b>	<b>.412</b>	<b>.379</b>	<b>.472</b>	<b>.474</b>
Psychoticism	Unusual Beliefs & Experiences	<b>.476</b>	<b>.467</b>	<b>.354</b>	<b>.449</b>	<b>.437</b>
	Restricted Affectivity	<b>.469</b>	<b>.409</b>	<b>.389</b>	<b>.494</b>	<b>.406</b>
Disinhibition	Irresponsibility	<b>.465</b>	<b>.407</b>	<b>.369</b>	<b>.466</b>	<b>.439</b>
Disinhibition	Impulsivity	<b>.428</b>	<b>.376</b>	<b>.308</b>	<b>.434</b>	<b>.418</b>

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
Negative Affect	Separation Insecurity	<b>.405</b>	<b>.366</b>	<b>.295</b>	<b>.416</b>	<b>.379</b>
	Rigid Perfectionism	<b>.371</b>	<b>.329</b>	<b>.294</b>	<b>.360</b>	<b>.354</b>
	Callousness	<b>.353</b>	<b>.293</b>	<b>.238</b>	<b>.361</b>	<b>.353</b>
	Submissiveness	<b>.246</b>	<b>.195</b>	<b>.239</b>	<b>.252</b>	<b>.223</b>
Antagonism	Deceitfulness	<b>.151</b>	<b>.106</b>	<b>.117</b>	<b>.144</b>	<b>.162</b>
Antagonism	Grandiosity	<b>.118</b>	<b>.101</b>	.060	<b>.116</b>	<b>.120</b>
<b>Antagonism</b>		<b>.117</b>	.082	.077	<b>.112</b>	<b>.127</b>
	Attention Seeking	<b>.103</b>	.078	.065	<b>.116</b>	.096
Antagonism	Manipulativeness	.048	.014	.042	.040	.057
	Risk Taking	.034	-.007	.009	.046	.049

*Note.* Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms.

Table 9

*PID-5 Personality Multiple Regressions with PTSD Symptoms in WTC Sample*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
<b>Detachment</b>		<b>.264</b>	<b>.249</b>	<b>.277</b>	<b>.326</b>	<b>.149</b>
Detachment	Anhedonia	.252	.228	.227	.341	.138
<b>Negative Affect</b>		<b>.232</b>	<b>.272</b>	<b>.171</b>	<b>.212</b>	<b>.187</b>
Negative Affect	Anxiousness	.231	.247	.184	.207	.203
Negative Affect	Emotional Lability	.228	.279	.169	.191	.187
Detachment	Withdrawal	.224	.198	.232	.266	.150
Psychoticism	Perceptual Dysregulation	.222	.300	.143	.230	.126
Disinhibition	Distractibility	.184	.209	.091	.214	.129
	Depressivity	.179	.199	.094	.215	.123
<b>Psychoticism</b>		<b>.161</b>	<b>.207</b>	.088	<b>.168</b>	<b>.108</b>
Detachment	Intimacy Avoidance	.161	.174	.195	.188	.069
	Restricted Affectivity	.156	.151	.131	.217	.077
<b>Disinhibition</b>		<b>.141</b>	<b>.152</b>	.058	<b>.159</b>	<b>.117</b>
Psychoticism	Unusual Beliefs & Experiences	.134	.174	.090	.122	.097
	Hostility	.122	.107	.005	.109	.165
	Perseveration	.109	.128	.072	.096	.092
	Suspiciousness	.106	.099	.072	.078	.129
Negative Affect	Separation Insecurity	.100	.129	.061	.106	.066
Psychoticism	Eccentricity	.085	.095	.018	.098	.071
	Callousness	.078	.055	.006	.088	.099

*(table continues)*

Domain	Facet	PTSD Total <sup>a</sup>	Intrusions	Avoidance	Numbing	Hyperarousal
	Rigid Perfectionism	.071	<b>.106</b>	.036	.055	.054
Disinhibition	Impulsivity	.065	.061	.013	.051	.089
Disinhibition	Irresponsibility	.063	.066	.048	.073	.045
	Risk Taking	-.052	-.089	-.077	-.050	-.001
Antagonism	Deceitfulness	.039	-.066	-.053	-.034	-.007
	Submissiveness	.029	.023	.082	.008	.023
Antagonism	Manipulativeness	-.024	-.044	-.014	-.030	-.003
<b>Antagonism</b>		-.023	-.042	-.045	-.016	-.001
	Attention Seeking	-.017	-.021	-.050	-.018	.007
Antagonism	Grandiosity	.005	-.003	-.042	.022	.015

*Note.* Bolded correlations are  $>.100$  and significant at  $p <.05$ . <sup>a</sup>Rank ordered based on absolute values of correlation with total PTSD symptoms.

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