



## Associations between personality and distress tolerance among trauma-exposed young adults



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### ABSTRACT

Low distress tolerance (DT) is related to negative mental health outcomes, particularly among trauma-exposed populations, who are at greater risk for mental health problems. However, little is known about potential etiological factors underlying the development of perceived (i.e., self-report) or behaviorally assessed DT. The present study examined associations between Big Five personality factors (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism) and multiple measures of DT. Participants were 440 college students (71.4% women) endorsing a history of one or more potentially traumatic events. Participants completed the abbreviated Big Five Inventory (BFI), Distress Tolerance Scale (DTS), Discomfort Intolerance Scale (DIS), breath-holding task, and Paced Auditory Serial Addition Test (PASAT). Results of a series of hierarchical linear regressions indicated that higher levels of neuroticism and lower levels of conscientiousness were significantly associated with lower DTS scores, but no other DT measures. Greater extraversion was significantly associated with greater DT on the DIS and the PASAT. Lower levels of openness were associated with lower DT on the breath-holding task. Individual differences in normal personality traits account for significant variation in multiple measures of DT and may provide insight into the etiology of various forms of DT.

### 1. Introduction

Distress tolerance (DT), the perceived or actual capacity to withstand negative physical or psychological states (Leyro, Zvolensky, & Bernstein, 2010), has emerged as a promising transdiagnostic risk marker for various forms of psychopathology. Lower levels of DT are associated with greater anxiety disorder symptoms (Bernstein, Marshall, & Zvolensky, 2011; Keough, Riccardi, Timpano, Mitchell, & Schmidt, 2010), and substance use problems (Daughters, Lejuez, Kahler, Strong, & Brown, 2005; Leyro et al., 2010). Studies conducted within trauma-exposed samples also have documented associations between lower levels of DT and greater posttraumatic stress disorder (PTSD) symptom severity (e.g., Marshall-Berenz, Vujanovic, Bonn-Miller, Bernstein, & Zvolensky, 2010; Vujanovic, Bonn-Miller, Potter, Marshall, & Zvolensky, 2011). Existing theory suggests that individuals low in DT may be more likely to engage in experiential avoidance, such as avoidant coping, which may in turn reinforce low DT (e.g., Vujanovic et al., 2011).

In spite of empirical and theoretical interest in DT, nuances in DT measurement are not well understood. Available evidence in community (McHugh et al., 2011) and trauma-exposed samples (Marshall-Berenz et al., 2010) indicates that existing measures of DT do not correspond well with one another, and are therefore not assessing one global DT construct. Distinctions have been made among DT measures on the basis of administration modality (i.e., behavioral tasks versus self-report measures) and type of distress referenced (i.e., tolerance of physical versus psychological distress). Past studies comparing DT measures have consistently documented significant associations among self-report DT measures (Marshall-Berenz et al., 2010; McHugh et al., 2011), significant associations among behavioral DT measures (Daughters et al., 2005), and a nonsignificant correlation between self-report and behavioral DT measures (Marshall-Berenz et al., 2010; McHugh et al., 2011), regardless of the type of distress being queried (e.g., physical vs. psychological). These findings suggest that perceived (i.e., self-report) and behavioral DT may represent distinct constructs. However, little is known about the nature and etiology of perceived

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versus behavioral DT. Understanding why certain individuals are prone to exhibiting low perceived or behavioral DT will serve to inform theoretical models of emotion regulation, as well as transdiagnostic prevention and early intervention efforts.

Personality, trait-like stable factors (Terracciano, McCrae, & Costa, 2010; Wortman, Lucas, & Donnellan, 2012), may be important for informing theory on the etiology of perceived compared to behavioral DT constructs. It may be the case that personality traits exert meaningful influence over an individual's development of DT, given that personality factors influence how one interacts with their environment. Previous research has documented significant associations between trait-level neuroticism and self-report, but not behavioral, measures of DT (Kaiser, Milich, Lynam, & Charnigo, 2012; Marshall-Berenz et al., 2010), suggesting that a tendency to experience high levels of negative affect may lead to lower perceived, but not behavioral, ability to cope with negative affect. Associations also have been documented between facets of impulsivity (e.g., negative urgency) and self-reported DT (Kelly, Cotter, & Mazzeo, 2014). To our knowledge, only one study to date has examined associations between trait-like personality characteristics and multiple measures of DT. Kiselica, Rojas, Bornovalova, and Dube (2014) examined associations between DT measures (including self-report and behavioral indices of psychological DT) and personality traits in undergraduate and treatment-seeking samples. They found that lower DT on the self-report, but not behavioral DT measures, was significantly associated with greater negative urgency in both undergraduate and treatment-seeking samples. Higher mean scores on the behavioral, but not self-report DT measures, were associated with higher achievement and higher sensation-seeking in the treatment-seeking but not the undergraduate sample. However, this study did not include self-report or behavioral measures of *physical* DT, precluding an ability to evaluate differences in personality as a function of psychological compared to physical DT.

In addition, prior studies have not evaluated DT in the context of the Big Five personality traits (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism), which are well-established dimensions of normal personality traits (John & Srivastava, 1999; McCrae & Costa, 1999). The Big Five personality traits are well validated and provide a useful framework for evaluating the role of personality in DT etiology. Finally, existing research (e.g., Marshall-Berenz et al., 2010; Vujanovic et al., 2011) and clinical practice (Linehan, 1993) highlight the importance of DT in psychological functioning among trauma-exposed individuals, necessitating study of DT and personality in trauma-exposed samples. Individuals exposed to trauma are at greater risk for a number of psychiatric disorders (Jacobsen, Southwick, & Kosten, 2001); therefore, understanding affect regulation processes in trauma-exposed populations is of particular clinical utility.

The aim of the current study was to examine concurrent associations between Big Five personality factors i.e., openness, conscientiousness, extraversion, agreeableness, neuroticism and multiple measures of DT (i.e., self-report and behavioral; physical and psychological) in a sample of trauma-exposed young adults. Based on extant literature, it was hypothesized that higher levels of neuroticism would be associated with lower self-reported physical and psychological DT. Evaluation of the associations between other Big Five traits and DT measures was exploratory, given the lack of prior work addressing these relationships.

## 2. Methods

### 2.1. Participants

Participants included 440 undergraduate students (71.4% women;  $M_{age} = 18.5$  years,  $SD = 0.63$ , range = 18–26) participating in a study on potentially traumatic events (PTEs) and alcohol use. Participants in the current study were a convenience sample recruited from “Spit for Science,” a university-wide investigation of college behavioral health at a large, urban, public university in the Mid-Atlantic region (Dick et al.,

2014), on the basis of endorsing screening items for potentially traumatic event exposure and current (past 30-day) alcohol use. Approximately 60.9% of the sample identified as White/Caucasian, 18.6% as Black/African American, 5.1% as Hispanic/Latino, 8.3% as Asian, 6.9% as Biracial, and 0.2% as “unknown”.

### 2.2. Measures

Participant demographics (e.g., age, sex, race, ethnicity) were obtained from a self-report questionnaire.

The Traumatic Life Events Questionnaire (TLEQ; Kubany, 2004) is a 23-item self-report measure assessing whether and when participants experienced a range of PTEs (e.g., natural disaster, assault, accidents, illness/injury). The TLEQ has evidenced good test-retest reliability and good convergent validity with interview assessments of PTEs (Kubany et al., 2000). The present study utilized the TLEQ to measure trauma load, defined as the total number of PTE categories endorsed.

The Big Five Inventory-Revised (BFI; John & Srivastava, 1999) is a 15-item self-report measure used in the current study to assess the following personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism. A revised version of the BFI was used in order to reduce participant burden, as the original measure contains 34-items. The 15 items retained on the revised measure were identified based on the results from an item response model fitting (i.e., common factor models and unidimensional item response theory models) conducted in the larger parent sample based on 2 time points (Dick et al., 2014). The retained items provided good discrimination compared to other items that were included as indicators of the factor (i.e., subscale) at various locations along the range of the latent factor scale. The current study utilized data from the 1st wave of the parent study. Participants rate a series of phrases, corresponding to adjectives considered to be markers of the five personality domains, on a Likert-type scale ranging from 1 (“disagree strongly”) to 5 (“agree strongly”), based on how much they perceive each phrase applies to them. Examples of phrases include: “I see myself as someone who is talkative” (extraversion), “I see myself as someone who does a thorough job” (conscientiousness), “I see myself as someone who has an active imagination” (openness), “I see myself as someone who worries a lot” (neuroticism), and “I see myself as someone who is helpful and unselfish with others” (agreeableness). Negative skewness for the Conscientiousness subscale of the BFI was corrected with a square root transformation (skewness = 0.69, kurtosis = -0.24). In the current study, the Cronbach alphas for the BFI revised subscales range from 0.59 to 0.81.

The Distress Tolerance Scale (DTS; Simons & Gaher, 2005) is a self-report measure assessing an individual's perceived ability to withstand emotional distress in terms of tolerability, acceptability, functional interference, and emotional regulation. Respondents indicate the extent to which they agree with a series of phrases (e.g., “I can tolerate being distressed or upset as well as most people”) on a 5-point Likert-type scale ranging from 1 (“strongly agree”) to 5 (“strongly disagree”). The total DTS score was employed as a global index of perceived psychological DT ( $\alpha = 0.92$ ).

The Discomfort Intolerance Scale (DIS; Schmidt, Richey, & Fitzpatrick, 2006) is a 5-item self-report measure assessing individuals' perceived ability to tolerate physical distress and discomfort. Sample items include: “I can tolerate a great deal of physical discomfort” and “I have a high pain threshold.” Participants rate the degree to which each statement describes them on a Likert scale ranging from 0 (“not at all like me”) to 6 (“extremely like me”). The DIS evidenced acceptable internal consistency ( $\alpha = 0.73$ ) and was used as a measure of perceived physical DT.

The Paced Auditory Serial Addition Test (PASAT; Lejuez, Kahler, & Brown, 2003) is a computer-based behavioral task assessing tolerance of emotional distress. Participants are instructed to compute the sum of two digits presented in sequence. After answering the sum,

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