

10-23-2018

# How Distress Tolerance Mediates the Relationship Between Posttraumatic Stress Disorder and the Interpersonal Theory of Suicide Constructs in a U.S. Military Sample

Rachel L. Martin

*University of Southern Mississippi, rachel.l.martin@usm.edu*

Brian W. Bauer

*University of Southern Mississippi, brian.bauer@usm.edu*

Kathleen L. Ramsey

*University of Southern Mississippi*

Bradley A. Green

*University of Southern Mississippi, Bradley.Green@usm.edu*

Daniel Capron

*University of Southern Mississippi, daniel.capron@usm.edu*

*See next page for additional authors*

Follow this and additional works at: [https://aquila.usm.edu/fac\\_pubs](https://aquila.usm.edu/fac_pubs)

 Part of the [Psychology Commons](#)

---

## Recommended Citation

Martin, R. L., Bauer, B. W., Ramsey, K. L., Green, B. A., Capron, D., Anestis, M. (2018). How Distress Tolerance Mediates the Relationship Between Posttraumatic Stress Disorder and the Interpersonal Theory of Suicide Constructs in a U.S. Military Sample. *Suicide and Life-Threatening Behavior*.

Available at: [https://aquila.usm.edu/fac\\_pubs/15624](https://aquila.usm.edu/fac_pubs/15624)

---

**Authors**

Rachel L. Martin, Brian W. Bauer, Kathleen L. Ramsey, Bradley A. Green, Daniel Capron, and Michael D. Anestis

How Distress Tolerance Mediates the Relationship Between PTSD and the Interpersonal Theory  
of Suicide Constructs in a United States Military Sample

Rachel L. Martin, B.A., Brian W. Bauer, M.S., Kathleen L. Ramsey, B.S., Bradley A. Green,  
Ph.D., Daniel W. Capron, Ph.D., Michael D. Anestis, Ph.D.

This work was in part supported by the Military Suicide Research Consortium (MSRC) Award No. (W81XWH-10-2-0181)(Dr. Michael Anestis principal investigator), by the Department of Defense Award No. (W81XWH-09-2-10569). Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the MSRC or the Department of Defense.

## **Abstract**

Despite the general suicide rate within the military being comparable to the general population when comparing peers, there are certain branches of the military that have elevated risk. Specifically, the U.S. National Guard has suicide rates that are constantly higher than other military branches and civilian peers. The National Guard are a unique military population in which they frequently transition between military and civilian life. With these unique experiences and heightened risk, military suicide prevention efforts may benefit from further research within this population. Post-Traumatic Stress Disorder (PTSD) is another concern amongst military personnel and has been linked to suicidal behavior. The current study examined the indirect effects that distress tolerance, a protective factor against suicide, has on the relationship between PTSD and constructs within a well-validated theory for suicide (the Interpersonal-Psychological Theory for suicidal behaviors) in a sample of U.S. Army National Guard personnel. Results indicated that distress tolerance had a significant indirect effect on the relationship between PTSD and thwarted belongingness, perceived burdensomeness, and capability for suicide. These findings are consistent with previous literature examining the relationship between distress tolerance and our outcome variables. These results could have important clinical implications, mainly that intervention strategies targeting distress tolerance could have significant impacts on suicide-related thoughts.

**Keywords:** Distress Tolerance, Thwarted Belongingness, Perceived Burdensomeness, Capability, Military, Suicidal Ideation

## **How Distress Tolerance Mediates the Relationship Between PTSD and the Interpersonal Theory of Suicide Constructs in a United States Military Sample**

Despite efforts to decrease suicide in the military, the most recent data indicates that suicide rates among military personnel are 20.2 out of 100,000 soldiers in 2015 (DoDSER, 2015). This rate is not significantly different than that of the general population when comparing same age and same sex peers (DoDSER, 2015). Additionally, of those who died by suicide in 2015, only a little more than half (57.4%) had a history of deployment (DoDSER, 2015). This indicates a need for researchers to examine both deployment and non-deployment issues when examining military suicide risk. Specifically, the U.S. Army National Guard not only saw an increase in suicides in 2015 with a rate of 29.2 per 100,000 (from 21.8 in 2014), but was the highest rate among all military component and services and is higher than the general population, compared to the same age and same sex peers (DoDSER, 2015). The National Guard has been a growing concern of military suicide researchers for the past five years, since their rise in suicide rates surpassed the already elevated active duty rates (Griffith, 2012a; Griffith, 2012b; Kline et al., 2011).

Although there is no globally accepted unified theory of suicidality, much of the empirical research on suicide has examined the Interpersonal Theory of Suicide (ITS; Joiner, 2005). This theory posits that there are three necessary components for an individual to die by suicide. The individual must have thwarted belongingness, or the perception that they do not have strong relationships to those around them, and perceived burdensomeness, or the belief that those around them would benefit from their death more than their life (Joiner, 2005). These two interpersonal components create what is known as suicidal desire (Van Orden et al., 2010). The third and final aspect of ITS is capability, which is the individual's ability to die by suicide (Joiner, 2005). Capability is measured through an individual's elevated pain tolerance and their

fearlessness about death (Joiner, 2005). The addition of capability is the catalyst that facilitates the transition from suicidal desire to a lethal or near lethal suicide attempt.

### **Post-Traumatic Stress Disorder**

PTSD is characterized as an adverse response to a traumatic event(s) in which there was exposure to actual or threatened death, serious injury, or sexual violence (American Psychiatric Association, 2013). Symptoms of PTSD include intrusive thoughts, avoidance of reminders of the event, negative alterations in mood or cognitions associated with the event, changes in stimulation and reactivity (American Psychiatric Association, 2013). PTSD prevalence is a significant concern within military populations, who have higher rates of exposure to traumatic situations (e.g., combat experience, military sexual trauma, etc.). It is important to note that PTSD symptoms can vary in severity with subthreshold PTSD rates among United States military veterans ranging from 2.3% to 22.3% (Berman, Przeworski, & Fenny, 2017) and estimates ranging from 10% to 18% of military personnel who have combat experiences exhibiting probable PTSD symptoms (Litz & Schlenger, 2009). Substantial research examines the relationship between PTSD and the military, including statistics dating back to 1998 showing that 30.9% of veterans had developed PTSD at some point throughout their lifetimes (King, King, Fairbank, Keane, & Adams, 1998). Compared to civilian rates of PTSD (4%; Briere, Agee, & Dietrich, 2016), military personnel are at an elevated risk. Therefore, there is a need for further research into the effects PTSD and PTSD symptoms have on suicide within at-risk military populations.

Prior longitudinal research has indicated that a mental health diagnosis (or combination of diagnoses) does not predict suicide attempts, but does predict suicidal ideation (Borges et al., 2007). Despite this, PTSD has been found to be associated with lifetime suicide attempts

(Nepon, Belik, Bolton, & Sareen, 2010), suicidal behavior (Sareen et al., 2007), and suicidal ideation (Sareen, Houlahan, Cox, & Asmundson, 2005). Furthermore, subthreshold PTSD symptoms are also associated with significant distress. In fact, subthreshold PTSD symptoms have shown to significantly increase the rate of suicidal ideation in a positive linear direction with more symptoms indicating greater suicidal ideation (Marshall et al., 2001).

Previous research examining PTSD and the ITS in U.S. National Guard indicated that specific PTSD symptom clusters were associated with specific ITS variables (Pennings et al., 2016). The study found that numbing symptoms were associated with both thwarted belongingness and perceived burdensomeness and that hyperarousal symptoms were associated with thwarted belongingness and fearlessness about death. Similarly, other studies have examined these variables, indicating a relationship between PTSD and suicidal desire (Bryan, Cukrowicz, West, & Morrow, 2010; Bryan, Hernandez, Allison, & Clemans, 2013) and capability for suicide (Bryan & Anestis, 2011; Capron, Cogle, Ribiero, Joiner & Schmidt, 2012).

Furthermore, research has identified an association between PTSD and completed suicide, and this relationship is exacerbated in individuals with a history of co-occurring PTSD and depression (Stevens et al., 2013). Research linking National Health Interview Surveys (from 1986 to 1994) and the National Death Index (from 1986 to 1997) found that veterans, compared to nonveterans, were twice as likely to die by suicide (Kaplan, McFarland, Huguet, & Newsom, 2012). In addition to this, Gradus and colleagues (2010) found that even when controlling for psychiatric confounds, including co-occurring disorders, a relationship between PTSD and completed suicide was still found. Although there is evidence identifying the relationship that

PTSD has with suicide risk within military personnel, there is less evidence providing information on how to decrease feelings of suicidal desire after an individual experiences PTSD.

### **Distress Tolerance**

One way that individuals can counteract negative emotions and experiences is through distress tolerance. Distress tolerance can be defined as, “the capacity to experience and withstand negative psychological states,” (Simons & Gaher, 2005, p.83). Distress tolerance can be empirically examined through the Distress Tolerance Scale, which is the individual’s perceived capacity to tolerate distress (Simons & Gaher, 2005). Distress tolerance has four major components; the individual’s ability to tolerate emotions; appraisal of the emotional situation; how much attention is absorbed by the negative emotion; and the ability to regulate their emotions (Leyro, Berstein, Vujanovic, McLeish, Zvolensky, 2013). When an individual has low levels of distress tolerance, they are more likely to act impulsively to alleviate their distress (Simons & Gaher, 2005). Research involving distress tolerance has indicate a key role in psychological disorders (Zvolensky et al., 2010). For instance, low levels of distress tolerance have been linked to disorders such as borderline personality disorder (Linehan, 1993) and substance use disorders (Howell, Leyro, Hogan, Buckner, Zvolensky, 2010), both of which are associated with suicidal behavior and higher rates of death by suicide than the general population.

Distress tolerance can be used as a clinical tool to help individuals cope with stressful life situations. Previous cross-sectional research on PTSD treatment has indicated that low distress tolerance is associated with more severe PTSD symptoms in both veteran (Banducci, Bujarski, Bonn-Miller, Patel, & Connolly, 2016) and civilian samples (Fetzner, Peluso & Asumondson, 2014; Marshall-Berenz, Vujanovic, Bonn-Miller, Bernstein & Zvolensky, 2011). Additionally,



longitudinal research has indicated that greater increases in distress tolerance during a residential treatment program lead to lower PTSD symptoms at discharge as compared to intake (Banducci, Connolly, Vujanovic, Alvarez, Bonn-Miller, 2017).

Research on distress tolerance has indicated that it can be used in times of crisis to deescalate an individual and subsequently prevent a suicide attempt. For example, Denckla and colleagues (2015) found that military veterans who attended eight or more distress tolerance skills groups had significantly less crisis events (e.g., either suicide-related emergency room visits, suicide-related psychiatric admissions, suicide attempt). Furthermore, distress tolerance has been associated with different factors of the ITS model. Within this framework, lower levels of distress tolerance have been linked to increased feelings of thwarted belongingness and perceived burdensomeness, and higher levels of distress tolerance have been associated with increased capability for suicide (Anestis, Bagge, Tull, & Joiner, 2011a; Anestis, Bender, Selby, Ribeiro, & Joiner, 2011b). High levels of distress tolerance may allow individuals to acknowledge and cope with their perceived feelings of isolation, leading to decreased feelings of thwarted belongingness and perceived burdensomeness. Furthermore, distress tolerance's negative relationship with capability for suicide could be the facilitating factor that allows individuals to persist through the distress that results from attempting suicide to have a lethal attempt.

To our knowledge, no studies have looked at how distress tolerance could be a mechanism through which PTSD relates to ITS variables. The current study seeks to further the literature by examining how PTSD's connection with suicide can be mediated by distress tolerance. We hypothesize that distress tolerance will have an indirect effect on the relationship between PTSD and ITS variables. Furthermore, it is hypothesized that there will be differences in the

relationships that distress tolerance has with PTSD and ITS variables. We hypothesized that there will be a negative relationship between PTSD and distress tolerance, a negative relationship between distress tolerance and suicidal desire variables, and a positive relationship between distress tolerance and capability for suicide. If the hypotheses are supported, results would provide support for increased intervention methods utilizing distress tolerance for individuals who are experiencing interpersonal problems. These results would also provide support of distress tolerance being a mechanism for an individual's ability to make a lethal suicide attempt. Additionally, these results would further support the positive relationship between distress tolerance and thwarted belongingness/perceived burdensomeness as well as the negative relationship between distress tolerance and capability for suicide.

## **Method**

### **Participants**

Participants were U.S. Military personnel (91.8% U.S. Army National Guard) who were part of a large study examining suicide risk in military personnel. Participants were recruited from a large Joint Forces Training Center in the southern United States. Participants completed questionnaires in groups of up to 25 and were eligible to participate in the study if they provided informed consent, were over the age of 18, and were affiliated with the U.S. military.

Participants ( $n = 512^1$ ) were primarily associated with the Army National Guard (91.8%; U.S. Army, 4.3%; Air National Guard, .5%; other, 3.5%) male (82.3%), Caucasian (62.1%; 26.6% African American, 4.4% Hispanic/Latino(a), 2.0% Asian/Pacific Islander, 4.9% other), and had less than 1 month since their last deployment (37.6%; 34.3% never deployed, 7.2% 1 month to 1 year, 9.4% between 1 to 3 years, 11.4% more than 3 years). The majority of our sample were

---

<sup>1</sup> Due to missing data, sample size varied. Perceived burdensomeness had the largest sample size ( $n=512$ ), followed by thwarted belongingness ( $n=508$ ), and capability ( $n=501$ ). The exploratory analysis had 418 participants.

never married (58.6%; 30.1% Married; 7% Divorced; 4% Separated; .4% Widowed) and had an average income of \$25,001 - \$59,000 (37.5%; \$50,001-\$75,000, 20.9%; \$10,001-\$25,000, 18.3%; \$75,001-\$100,000, 9.7%; \$0-\$10,000, 7.2%; >\$100,000, 6.4%). Additionally, 9.1% of our sample endorsed any lifetime suicidal ideation.

## **Measures**

### **Predictor and Mediator Variables.**

*Post-Traumatic Stress Disorder Checklist* (PCL-M; Weathers, Litz, Herman, Huska, & Keane, 1993). The PCL-M is 17-item self-report measure used to assess DSM-IV PTSD symptoms within military personnel. Participants are asked to think of a “stressful military experience” they had and rate symptoms (e.g., “trouble falling or staying asleep”, or “feeling distant or cut off from other people”) of how bothered they are by them on a scale of 1 (*Not at all*) to 5 (*Extremely*) in the last month. Higher scores indicate higher levels of PTSD symptoms. Scores are totaled and range from 17 (absence of symptoms) to 85 (extreme distress) and the PCL has shown good diagnostic effectiveness and respectable reliability (Weathers et al., 1993). Cronbach’s Alpha for this sample was .93.

*Distress Tolerance Scale* (Simons & Gaher, 2005). The distress tolerance scale is a 15-item self-report questionnaire that assesses how individuals experience negative emotions as unbearable. Due to the self-report nature of this scale, results and interpretations will refer to this as “perceived distress tolerance”. Participants are asked to think of a time that they felt distressed or upset and respond to statements such as, “*Feeling distressed or upset is unbearable to me*” on a Likert scale of 1 (*strongly agree*) to 5 (*strongly disagree*; Simons & Gaher, 2005). Higher scores indicate higher distress tolerance and ability to handle negative emotions. Cronbach’s Alpha for this sample was .88.

## **Outcome Variables.**

*Interpersonal Needs Questionnaire-15* (INQ – 15; Van Orden, Witte, Gordon, Bender, & Joiner, 2008; Van Orden, Cukrowicz, Witte, & Joiner, 2012). The INQ – 15 measures levels of thwarted belongingness and perceived burdensomeness on a Likert scale from 1 (*Not at all true for me*) to 7 (*Very true for me*) whereas higher scores indicate higher levels of thwarted belongingness or perceived burdensomeness. The INQ has two subscales, thwarted belongingness (consisting of 9 items) and perceived burdensomeness (consisting of 6 items). Previous research has indicated that this version of the INQ has respectable construct validity, reliability, and generalizability (Van Orden et al., 2012). Furthermore, INQ-15 has been used in military samples before demonstrating strong psychometric properties (Bryan et al., 2010; Van Orden et al., 2012) and establishing good convergent validity and reliability (Gutierrez et al., 2016). In the literature, thwarted belongingness and perceived burdensomeness tend to correlate. As such, research has begun to covary the effect of each when examining the effect of the other (Forrest et al., 2016; Hill & Pettit, 2012; Martin et al., 2017). The internal consistency for the thwarted belongingness subscale in this sample was .90 and the perceived burdensomeness subscale was .89. There was also a significant correlation between these two variables (.70,  $p < .001$ ) and following trend in literature, during analyses they will be covaried (Forrest et al., 2016; Hill & Pettit, 2012; Martin et al., 2017).

*Acquired Capability for Suicide Scale-20* (ACSS; Van Orden et al., 2008). The ACSS is a 20 item self-report questionnaire which examines the participant's ability to die by suicide. This questionnaire measures general fearlessness, fearlessness about death, pain tolerance, and attraction towards aggressive situations. ACSS items are measured on a Likert scale from 0 (*Not at all like me*) to 4 (*Very much like me*) whereas higher scores indicate higher levels of capability

for suicide. The 20-item version of ACSS has been shown to have clinical utility (Rimkeviciene, Hawgood, O’Gorman, De Leo, 2015), and in a recent study demonstrated the highest criterion validity when compared to ACSS-5, ACSS-8, and ACSS-Fearlessness about Death (Rimkeviciene, Hawgood, O’Gorman, De Leo, 2017). This scale has demonstrated convergent and discriminant validity (Cronbach’s alpha for this sample was .84).

### **Exploratory Analyses**

*Beck Scale for Suicidal Ideation* (BSS; Beck & Steer, 1991). The BSS is a brief scale used to quickly distinguish individuals at risk for suicide. The BSS consists of 21 items, yet the total suicidal ideation score is derived from the first 19 items. Within this scale, higher scores indicate increased levels of suicidal ideation. This measure has demonstrated strong psychometric properties (Steer, Rissmiller, Ranieri, & Beck, 1993) and has previously been utilized in military samples (O’Conner et al., 2017; Pfeiffer et al., 2014). The alpha in this sample was .85.

### **Analytic Strategy**

To test the mediating role of distress tolerance in the relationship between PTSD symptoms and the three ITS constructs (i.e., capability for suicide, thwarted belongingness, perceived burdensomeness), we performed a series of tests of indirect effects. Indirect effects models were tested in SPSS v. 24.0 PROCESS macro by Hayes (2013) using 10,000 bootstrapped resamples. The independent variable was PTSD symptoms, the mediating variable was distress tolerance scores, and the outcome variables were perceived burdensomeness, capability for suicide, and thwarted belongingness total scores. Using an empirical approach to selecting covariates, demographic variables that were significantly correlated with either our

predictor or outcome variables were used as covariates in our analysis. Correlations can be found in **Table 1**. Missing data for these analyses was handled by pairwise deletion.

## **Results**

Descriptive statistics and correlations were conducted to interpret normality and interrelatedness of the study variables, and can be found in **Table 1**. Perceived burdensomeness and PTSD symptoms were positively skewed and leptokurtic (PTSD symptoms ranged from 17 to 34; Perceived burdensomeness ranged from 6 to 34). Therefore, these variables were rank transformed using Blom's formula to more accurately estimate a normal distribution (transformed PTSD symptoms ranged from -1.03 to 3.16; transformed Perceived burdensomeness ranged from -.40 to 3.14). The transformed variables were used for all analyses. However, non-transformed variables were used in the descriptives found in **Table 1** for ease of interpretation.

### **Indirect and Direct Effect Models**

Three mediation models were tested. Each included PTSD symptoms as the independent variable and perceived distress tolerance as the mediating variable, with the outcome variable changing to include all three constructs from the ITS. Significant indirect effects were found for distress tolerance mediating the relationship between thwarted belongingness and PTSD symptoms, capability for suicide and PTSD symptoms, and the relationship between perceived burdensomeness and PTSD symptoms. The figures and path coefficients for these models are presented in **Figures 1-4**.

**PTSD, Perceived Distress Tolerance, and Capability for Suicide.** A total of 501 participants completed all three measures and were included in the following analysis. First, the capability for suicide was regressed on PTSD symptoms and indicated a significant total effect ( $\beta$

= 2.91, SE = .56,  $p < .001$ , 95% CI = 1.81 to 4.02). The mediation model with capability as the outcome variable revealed a significant indirect effect between PTSD symptoms and capability for suicide through perceived distress tolerance ( $\beta = -.640$ , SE = .213, 95% CI = -1.078 to -.234). The direct effect of PTSD on capability was also significant ( $\beta = 3.55$ , SE = 0.56,  $p < .001$ , 95% CI = 2.39 to 4.72), with the indirect effect mediating 18.0% of the direct effect.

**PTSD, Perceived Distress Tolerance, and Thwarted Belongingness.** A total of 508 participants completed all three measures and were included in this analysis. Regressing thwarted belongingness on PTSD symptoms indicated a significant total effect ( $\beta = 2.53$ , SE = 0.377,  $p < .001$ , 95% CI = 1.787 to 3.278). When thwarted belongingness was entered as the outcome variable, results revealed a significant indirect effect between PTSD symptoms and thwarted belongingness through perceived distress tolerance ( $\beta = .276$ , SE = .110, 95% CI = .085 to 0.515). The direct effect of PTSD on thwarted belongingness remained significant ( $\beta = 2.23$ , SE = 0.378,  $p < .001$ , 95% CI = 1.509 to 2.995), with the indirect effect mediating 10.9% of the direct effect.

**PTSD, Perceived Distress Tolerance, and Perceived Burdensomeness.** The last model involved a total of 512 participants who completed all three measures for this study. Perceived burdensomeness was regressed on PTSD symptoms and revealed a significant total effect ( $\beta = .062$ , SE = .030,  $p = .038$ , 95% CI = .003 to .120). The mediation model with perceived burdensomeness as the outcome variable indicated a significant indirect effect between PTSD symptoms on perceived burdensomeness through perceived distress tolerance ( $\beta = .017$ , SE = .008, 95% CI = .004 to .036). The direct effect of PTSD on perceived burdensomeness was

not significant ( $\beta = .044$ ,  $SE = .030$ ,  $p = .134$ , 95%  $CI = -.014$  to  $.102$ ), with the indirect effect mediating 28.1% of the direct effect.

### **Exploratory Analysis**

**PTSD, Perceived Distress Tolerance, and Suicidal Ideation.** In addition to the ITS variables, we conducted an exploratory analysis with suicidal ideation as the outcome variable. Regarding recent research indicating that suicidal desire and suicidal ideation are distinct variables (Klonsky, 2017), we further analyzed our proposed model with suicidal ideation as the outcome variable. A total of 418 participants completed all three measures for this study. Suicidal ideation was regressed on PTSD symptoms and revealed non-significant total effect ( $\beta = .029$ ,  $SE = .032$ ,  $p = .372$ , 95%  $CI = -.034$  to  $.091$ ). The mediation model with suicidal ideation as the outcome variable indicated a significant indirect effect between PTSD symptoms on suicidal ideation through perceived distress tolerance ( $\beta = .017$ ,  $SE = .010$ , 95%  $CI = .0002$  to  $.038$ ). The direct effect of PTSD on suicidal ideation was not significant ( $\beta = .012$ ,  $SE = .032$ ,  $p = .720$ , 95%  $CI = -.052$  to  $.075$ ), with the indirect effect mediating 59.7% of the direct effect.

### **Alternative Models**

For each of the analyses we proposed, we ran alternative models. First, analyses were performed again with non-transformed variables and there were no changes in trends or significance. Next, we ran an alternative model where the outcome variable and mediator were switched. When capability was the mediator, there were significant total ( $p < .001$ ), direct ( $p < .001$ ), and indirect effect ( $\beta = .38$ ,  $SE = 0.15$ , 95%  $CI = .121$  to  $.722$ ). When thwarted belongings was the mediator, there were significant total ( $p < .001$ ), direct ( $p = .003$ ), and indirect effect ( $\beta = -.646$ ,  $SE = 0.218$ , 95%  $CI = -1.093$  to  $-.233$ ). When perceived burdensomeness was the mediator, there was a non-significant indirect effect ( $\beta = -.214$ ,  $SE = 0.125$ , 95%  $CI = -.485$



to .006). Finally, for our exploratory analysis, when suicidal ideation was the mediator, there were significant total ( $p < .001$ ), direct ( $p < .001$ ), and indirect effect ( $\beta = -.542$ ,  $SE = 0.205$ , 95% CI: =  $-.991$  to  $-.197$ ).

## **Discussion**

Suicide and PTSD are important mental health issues that have increased prevalence rates in military populations. Despite the well-known connection between these two variables, the mechanistic underpinnings relating them remains ambiguous. The current study sought to increase understanding between this important relationship by exploring the mediating role of perceived distress tolerance in the relationship between PTSD symptoms and ITS constructs. Our results were largely in line with our hypotheses, finding that perceived distress tolerance is a pathway for the indirect relationship between PTSD symptoms and perceived burdensomeness, PTSD and thwarted belongingness, as well as PTSD and the capability for suicide. These results could have important clinical implications, mainly that intervention strategies targeting distress tolerance could have significant impacts on suicide-related thoughts.

Analyses revealed that perceived distress tolerance accounts for variance within the relationship between PTSD and ITS constructs. These results parallel previous findings of evidence supporting the relationship between ITS components and distress tolerance (Anestis, Bagge, Tull, & Joiner, 2011a; Anestis, Bender, Selby, Ribeiro, & Joiner, 2011b). The models also supported previous results by demonstrating that higher distress tolerance – the ability to experience and withstand negative psychological states – was inversely related to PTSD symptoms (Bryan & Anestis, 2011; Capron, Coughle, Ribiero, Joiner & Schmidt, 2012). Additionally, our exploratory analyses indicated that perceived distress tolerance provides an indirect pathway from PTSD to suicidal ideation. These results are consistent with the ITS where

suicidal desire as a construct (thwarted belongingness and perceived burdensomeness) is highly correlated with suicidal ideation. Furthermore, this pathway provides empirical support for the importance of low levels of perceived distress tolerance as playing a key role in developing suicidal ideation and, for high levels, the ability to die by suicide.

Several reasons exist for why perceived distress tolerance could be accounting for the relationship between PTSD and ITS variables. First, a person with elevated PTSD symptoms may feel that they are unable to handle difficult emotional states and perpetuate any existing low perceived distress tolerance. This in turn can have many cascading effects onto ITS constructs. For example, when an individual has the ability to withstand negative emotional states, their relationship with those around them could improve and ultimately have them feel more connected. In addition, they might not have the perception that their relationship with others is weak and that those around them would be better off without them. Higher perceived distress tolerance could also help individuals re-experiencing traumatic events regulate their emotions and communicate their experiences with others, therefore decreasing feelings of thwarted belongingness. The current study found that perceived distress tolerance was positively related to the acquired capability for suicide. This is in line with existing theoretical interpretations of the capability for suicide, in that a certain amount of perceived distress tolerance is needed in order to withstand events that increase pain tolerance and increase fearlessness about death (Anestis, Pennings, Lavender, Tull, & Gratz, 2013; Anestis, Tull, Bagge, & Gratz, 2012). Taken together, our findings indicate that perceived distress tolerance is an important component in understanding the correlations between PTSD and perceived burdensomeness, thwarted belongingness, and the acquired capability for suicide.

Furthermore, since perceived distress tolerance can help people overcome negative emotions, it could facilitate capability for suicide. Since death goes against human nature, perceived distress tolerance could allow individuals to persist through the negative emotions associated with suicide. The directionality of the relationship between distress tolerance capability is consistent with previous literature (Anestis, Bagge, Tull, & Joiner, 2011a; Anestis, Bender, Selby, Ribeiro, & Joiner, 2011b). Despite the potential increase in capability for suicide, perceived distress tolerance decreases suicidal desire and therefore decreases suicide risk. Indeed, the ITS argues that the capability for suicide is not, in and of itself, pathological. Only when paired with suicidal desire does the capability become problematic. As such, the development of perceived distress tolerance skills is likely highly beneficial in that it will reduce the likelihood that suicidal desire develops. It simply remains important to be mindful that blindly tolerating distress in pursuit of problematic goals (e.g. death) is dangerous and, as such, development of skills should be presented in a nuanced manner.

In addition to the theoretical importance of these results, these findings also could have clinical implications. Our results suggesting that distress tolerance plays an important role in the association between PTSD symptoms and ITS constructs also lends support that distress tolerance skills training could be beneficial in decreasing veteran's crisis events (e.g., suicide-related emergency visits, suicide-related psychiatric admissions, and suicide attempts; Denckla, Bailey, Jackson, Tatarakis, & Chen, 2015). Perceived distress tolerance has been identified as an important variable in emotion regulation, in which individuals can withstand negative experiences. In particular, distress tolerance has been identified as a crucial aspect of treatment for Dialectical Behavior Therapy (DBT; Linehan, 1993). Perceived distress tolerance skills can be taught and involve increasing resiliency against upsetting situations. Although this is

important in decreasing individuals' feelings of perceived burdensomeness and thwarted belongingness, distress tolerance increases capability for suicide. This study indicates that perceived distress tolerance can be a key component in treatment for suicidal individuals who have PTSD symptoms.

### **Limitations & Strengths**

The results of this study should be interpreted along with its limitations. First, this study only utilized one self-report measure for distress tolerance. Although this scale is commonly used in the distress tolerance literature (Capron, Norr, Macatee, & Schmidt, 2013; Anestis, Bagge, Tull, & Joiner, 2011a), other studies have found that behavioral measures of distress tolerance yield different results than their self-report counterparts (Anestis & Joiner, 2012). For example, behaviorally reported distress tolerance may have weaker predictive abilities for suicidal desire compared to perceived distress tolerance (Anestis & Joiner, 2012), whereas both behavioral and self-reported distress tolerance are correlated with acquired capability outcomes. Understanding how the combination of these indices interacts to increase the accuracy of ITS constructs remains unstudied. Second, this study used cross-sectional data. Due to the nature of these data, our results are unable to provide support for any causal inferences. Another limitation of this study is the low levels of PTSD symptomology within this sample. Future research should examine if the significant findings found within this low PTSD symptomology sample are replicable in those reporting high levels of PTSD. The PCL-M is a self-report survey where the participant is asked to think of "stressful military experiences" without providing examples of specific traumas associated with military experiences. Similarly, future research should examine clinical diagnoses of PTSD rather than self-report. Research implementing interview-based measures of PTSD, such as the Clinician-Administered PTSD Scale, may

provide more valid severity indices of PTSD than self-report (Weathers et al., 2013).

Additionally, the study's generalizability is limited since our sample largely consisted of largely Caucasian males who are part of the Army National Guard. While this is the primary demographic of the military, it cannot be generalized to other demographics or branches within the military. Lastly, the capability for suicide and suicidal ideation are not synonymous with suicide attempt history or suicide death; thus, associations concerning suicide-related behaviors from our models cannot be made.

Despite these limitations, this study has important strengths. First and foremost, this study has a large sample size, which provided statistical strength to this study. The sample also primarily focused on the high risk and understudied U.S. Army National Guard. These individuals have the highest rate of suicide within the military and are especially prone to feelings of thwarted belongingness and perceived burdensomeness as compared to active duty military (Podlogar et al., 2017). Finally, this study is unique in examining a mechanism through which PTSD facilitates suicidal ideation and action.

### **Distress Tolerance Future Directions and Conclusions**

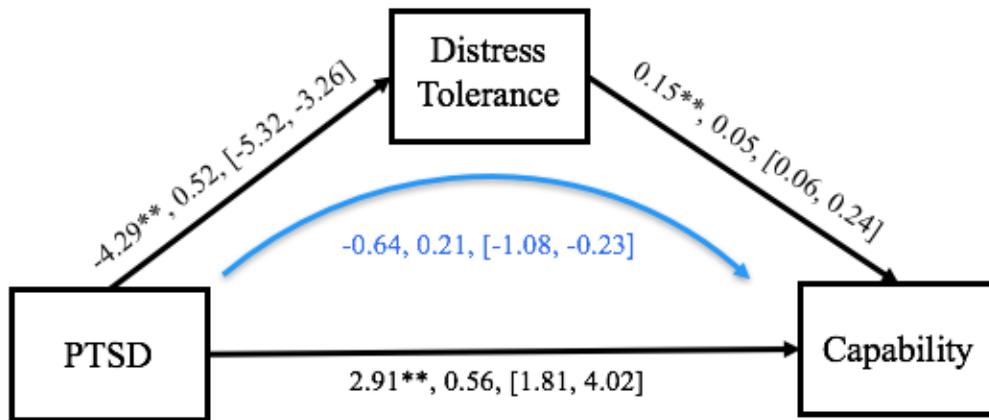
PTSD and suicide remain major health concerns in military populations. Distress tolerance has been implicated as an important factor in both suicide research and PTSD research, although independently. This study was the first to examine the potential mediating role of distress tolerance in the relationship between PTSD symptoms and important theoretical constructs involved in the creation of suicidal desire and capability. This study used a large sample of Army National Guard military personnel; a population that has recently been shown to have increased suicide-related thoughts and behaviors compared to general and other military populations. One possible justification for National Guard personnel's suicide rate is their

unique military experiences where individuals experience both civilian and military lifestyles simultaneously.

An important question moving forward will be: when does distress tolerance facilitate negative outcomes? It has been proposed that increased distress tolerance could be harmful in that a person with high distress tolerance may be the pathway in which an individual is more capable to persist through the psychological pain involved during a suicide attempt (Anestis & Joiner, 2012), however, lower levels of distress tolerance can facilitate the development of suicidal desire. Research focusing on distinguishing, or more accurately gauging, the potentially harmful levels of distress tolerance will be important in adding to the scientific literature regarding the contributions of distress tolerance, and how it can be optimally modified within a treatment setting. Our results show that PTSD symptoms are more strongly related to suicidal desire (i.e., thwarted belongingness and perceived burdensomeness) and capability through decreased distress tolerance. These results not only introduce new information on how PTSD and suicide are related, but also suggest tangible treatment strategies that target malleable components related to suicide risk.

**Figure 1.**

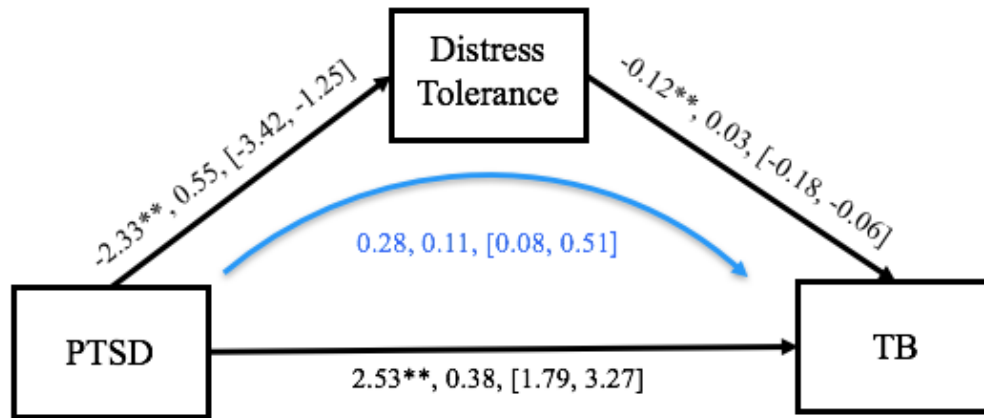
*Model 1: Distress tolerance mediating PTSD symptoms and the capability for suicide*



*Note.*  $** = p < .01$ .  $n = 501$ . Path estimates are presented as standardized  $\beta$  weights with standard error and 95% confidence intervals. PTSD = Posttraumatic Stress Disorder symptoms. The blue arch designates indirect effects with 95% confidence intervals.

**Figure 2.**

*Model 2: Distress tolerance mediating PTSD symptoms and thwarted belongingness*

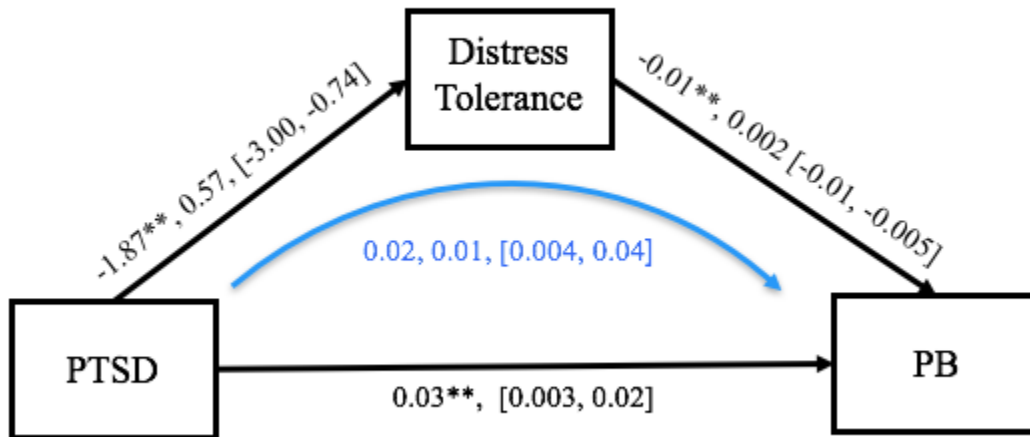


*Note.*  $** = p < .01$ .  $n = 508$ . Path estimates are presented as standardized  $\beta$  weights with standard error and 95% confidence intervals. PTSD = Posttraumatic Stress Disorder symptoms. TB = Thwarted Belongingness. The blue arch designates indirect effects with 95% confidence intervals.



**Figure 3.**

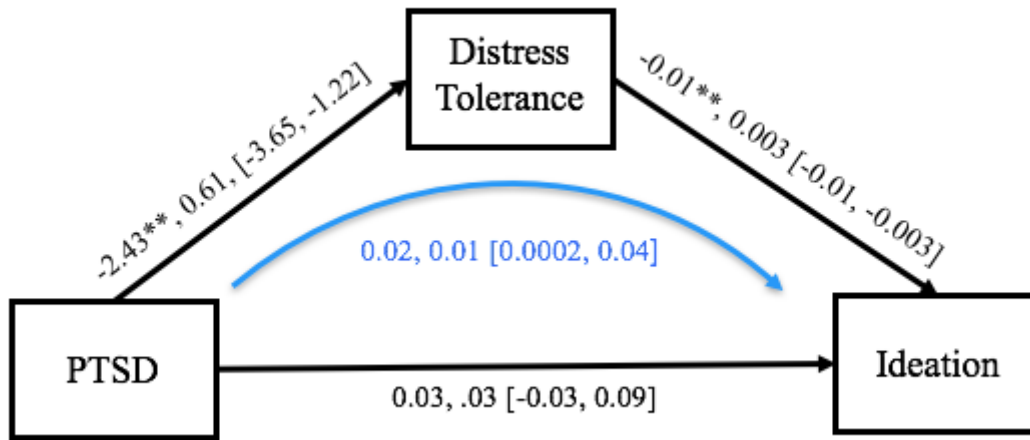
*Model 3: Distress tolerance mediating PTSD symptoms and perceived burdensomeness*



*Note.*  $** = p < .01$ .  $n = 512$ . Path estimates are presented as standardized  $\beta$  weights with standard error and 95% confidence intervals. PTSD = Posttraumatic Stress Disorder symptoms. PB = Perceived Burdensomeness. The blue arch designates indirect effects with 95% confidence intervals.

**Figure 4.**

*Model 4: Distress tolerance mediating PTSD symptoms and suicidal ideation*



*Note.* \*\* =  $p < .01$ .  $n = 418$ . Path estimates are presented as standardized  $\beta$  weights with standard error and 95% confidence intervals. PTSD = Posttraumatic Stress Disorder symptoms. Ideation = Suicidal Ideation. The blue arch designates indirect effects with 95% confidence intervals.

**Table 1.** Correlations and descriptive statistics between study variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Capability	--										
2. TB	.03	--									
3. PB	.04	.70**	--								
4. PTSD	.17**	.47**	.40**	--							
5. DT	.07	-.44**	-.47**	-.33**	--						
6. Suicidal Ideation	.13**	.31**	.32**	.23**	-.25**	--					
7. Age	-.10**	-.04	-.02	.01	-.08*	-.07*	--				
8. Sex	-.31**	.08*	-.01	.02	-.07	.03	.06	--			
9. Race	-.11**	.08*	.01	.06	-.06	.03	.02	.06	--		
10. SES	<-.01	-.17**	-.12**	-.05	.18**	-.04	.33**	-.11**	-.05	--	
11. Education	-.11**	-.05	-.05	.02	.12**	-.03	.40**	.14**	.06	.30**	--
12. Employment	.02	-.09	-.10**	-.07	.07	-.06	.24**	-.03	-.04	.26**	.13**
Mean	56.48	18.70	7.89	24.69	56.54	0.35	27.05	--	--	--	--
SD	12.58	10.42	4.07	10.40	11.60	1.55	8.12	--	--	--	--

Note: \*\* $p < .01$ ; \* $p < .05$

TB = Thwarted Belongingness; PB = Perceived Burdensomeness; PTSD = PTSD Symptom Total; DT = Distress Tolerance; SES = Socio-economic Status

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). Washington, DC: Author.
- Anestis, M.D., Bagge, C.L., Tull, M.T., & Joiner, T.E. (2011a). Clarifying the role of emotion dysregulation in the interpersonal-psychological theory of suicidal behavior in an undergraduate sample. *Journal of Psychiatry Research*, *45*, 172-82.
- Anestis, M.D., Bender, T.W., Selby, E.A., Ribeiro, J.D., & Joiner, T.E. (2011b). Sex and emotions in the acquired capability for suicide. *Archives of Suicide Research*, *15*, 172-83.
- Anestis, M. D., & Joiner, T. E. (2012). Behaviorally-indexed distress tolerance and suicidality. *Journal of psychiatric research*, *46*(6), 703-707.
- Anestis, M. D., Pennings, S. M., Lavender, J. M., Tull, M. T., & Gratz, K. L. (2013). Low distress tolerance as an indirect risk factor for suicidal behavior: Considering the explanatory role of non-suicidal self-injury. *Comprehensive psychiatry*, *54*(7), 996-1002.
- Anestis, M. D., Tull, M. T., Bagge, C. L., & Gratz, K. L. (2012). The moderating role of distress tolerance in the relationship between posttraumatic stress disorder symptom clusters and suicidal behavior among trauma exposed substance users in residential treatment. *Archives of suicide research*, *16*(3), 198-211.
- Averill, L. A., Fleming, C. E., Holens, P. L., & Larsen, S. E. (2015). Research on PTSD prevalence in OEF/OIF Veterans: expanding investigation of demographic variables. *European Journal of Psychotraumatology*, *6*, 10.3402/ejpt.v6.27322.  
<http://doi.org/10.3402/ejpt.v6.27322>

- Banducci, A.N., Bujarski, S.J., Bonn-Miller, M.O., Patel, A. & Connolly, K.M. (2016). The impact of intolerance of emotional distress and uncertainty on veterans with co-occurring PTSD and substance use disorders. *Journal of Anxiety Disorders, 41*, 73-81.
- Banducci, A.N., Connolly, K.M., Vujanovic, A.A., Alvarez, J., & Bonn-Miller, M.O. (2017). The impact of changes in distress tolerance on PTSD symptom severity post-treatment among veterans in residential trauma treatment. *Journal of Anxiety Disorder, 47*, 99-105.
- Beck, A.T., & Steer, R.A. (1991). Manual for the Beck Scale for Suicidal Ideation. Psychological Corporation. San Antonio, TX.
- Bergman, H. E., Przeworski, A., & Feeny, N. C. (2017). Rates of subthreshold PTSD among US military veterans and service members: A literature review. *Military Psychology, 29*(2), 117.
- Briere, J., Agee, E., & Dietrich, A. (2016). Cumulative trauma and current posttraumatic stress disorder status in general population and inmate samples. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*(4), 439.
- Bryan, C., Morrow, C.E., Anestis, M.D., Joiner, T.E. (2010). A preliminary test of the interpersonal-psychological theory of suicidal behavior in a military sample. *Personality and Individual Differences, 48*(3), 347-350.
- Capron, D.W., Cogle, J.R., Ribiero, J.D., Joiner, T.J. & Schmidt, N.B. (2012). An interactive model of anxiety sensitivity relevant to suicide attempt history and future suicidal ideation. *Journal fo Psychiatric Research, 46*(2), 174-180.
- Capron, D. W., Norr, A. M., Macatee, R. J., & Schmidt, N. B. (2013). Distress tolerance and anxiety sensitivity cognitive concerns: testing the incremental contributions of affect

dysregulation constructs on suicidal ideation and suicide attempt. *Behavior Therapy*, 44(3), 349-358.

Denckla, C.A., Bailey, R., Jackson, C., Tatarakis, J., & Chen, C.K. (2015). A Novel Adaptation of Distress Tolerance Skills Training Among Military Veterans: Outcomes in Suicide-Related Events. *Cognitive and Behavioral Practice*, 22(4), 450-457.

Dohrenwend, B. P., Turner, J. B., Turse, N. A., Adams, B. G., Koenen, K. C., & Marshall, R. (2006). The Psychological Risks of Vietnam for U.S. Veterans: A Revisit with New Data and Methods. *Science (New York, N.Y.)*, 313(5789), 979–982.

<http://doi.org/10.1126/science.1128944>

Dursa, E. K., Reinhard, M. J., Barth, S. K., & Schneiderman, A. I. (2014). Prevalence of a positive screen for PTSD among OEF/OIF – era veterans in a large population-based cohort. *Journal of traumatic stress*, 27(5), 542-549.

Forrest, L.N., Bodell, L.P., Witte, T.K., Goodwin, N., Bartlett, M.L., Siegfried, N., Eddy, K.T., Thomas, J.J., Franko, D.L., & Smith, A.R. (2016). Associations between eating disorder symptoms and suicidal ideation through thwarted belongingness and perceived burdensomeness among eating disorder patients. *Journal of Affective Disorders*, 195, 127-135.

Gradus, J. L., Qin, P., Lincoln, A. K., Miller, M., Lawler, E., Sørensen, H. T., & Lash, T. L. (2010). Posttraumatic stress disorder and completed suicide. *American journal of epidemiology*, 171(6), 721-727.

Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York, NY: The Guilford Press.

- Hill, R.M. & Pettit, J.W. (2012). Suicidal Ideation and Sexual Orientation in College Students: The Roles of Perceived Burdensomeness, Thwarted Belongingness, and Perceived Rejection Due to Sexual Orientation. *Suicide and Life-Threatening Behavior*, 42(5), 567-579.
- Howell, A.N., Leyro, T.M., Hogan, J., Buckner, J.D., Zvolensky, M.J. (2010). Anxiety sensitivity, distress tolerance, and discomfort intolerance in relation to coping and conformity motives for alcohol use and alcohol use problems among young adult drinkers. *Addictive Behaviors*, 35, 1144-7.
- Howlett, J. R., & Stein, M. B. (2016). Post-Traumatic Stress Disorder: Relationship to Traumatic Brain Injury and Approach to Treatment. In Laskowitz, D., & Grant G. (Eds), *Translationa Research in Traumatic Brain Injury*. Chapter 16. Boca Raton, FL: CRC Press/Taylor and Francis Group.
- Gutierrez, P.M., Pease, J., Matarazzo, B.B., Monteith, L.L., Hernandez, T., Osman, A., (2016). Evaluating the Psychometric Properties of the Interpersonal Needs Questionnaire and the Acquired Capability for Suicide Scale in Military Veterans. *Psychological Assessment*, ISSN: 1040-3590.
- Fetzner, M.G., Peluso, D.L., Asmundson, G.J.G. (2014). Tolerating Distress After Trauma: Differential Associations Between Distress Tolerance and Posttraumatic Stress Symptoms. *Journal of Psychopathology and Behavioral Assessment*, 36, 475-484.
- Joiner, T.E. (2005). Why people die by suicide. Boston, MA: Harvard University Press.
- Kaplan, M. S., Huguet, N., McFarland, B. H., & Newsom, J. T. (2007). Suicide among male veterans: a prospective population-based study. *Journal of epidemiology and community health*, 61(7), 619-624.

- Kaplan, M. S., McFarland, B. H., Huguet, N., & Newsom, J. T. (2012). Estimating the Risk of Suicide Among US Veterans: How Should We Proceed From Here? *American Journal of Public Health, 102*(Suppl 1), S21–S23. <http://doi.org/10.2105/AJPH.2011.300611>
- King, L. A., King, D. W., Fairbank, J. A., Keane, T. M., & Adams, G. A. (1998). Resilience–recovery factors in post-traumatic stress disorder among female and male Vietnam veterans: Hardiness, postwar social support, and additional stressful life events. *Journal of personality and social psychology, 74*(2), 420.
- Klonsky, D.E. (2017, November). *Distinguishing Suicidal Desire from Suicidal Ideation: Implications for Researchers and Research Design*. Paper presented at the bi-annual meeting of the International Academy of Suicide Research, Henderson, NV.
- Linehan, M.M. (1993). Cognitive-behavioral treatment of borderline personality disorder. New York, NY: Guilford Press.
- Litz, B. T., & Schlenger, W. E. (2009). PTSD in service members and new veterans of the Iraq and Afghanistan wars: A bibliography and critique. *PTSD Research Quarterly, 20*(1), 1-7.
- Leyro, T.M., Berstein, A., Vujanovic, A.A., McLeish, A.C., Zvolensky, M.J. (2013). Distress Tolerance Scale: A Confirmatory Factor Analysis Among Daily Cigarette Smokers. *Journal of Psychopathology and Behavioral Assessment, 33*(1), 47-57.
- Marshall, R.D., Olfson, M., Hellman, F., Blanco, C., Guardino, M., Struening, E.L. (2001). Comorbidity, Impairment, and Suicidality in Subthreshold PTSD. *American Journal of Psychiatry, 158*, 1467-73.



- Marshall-Berenz, E.C., Vujanovic, A.A., Bonn-Miller, M.O., Bernstein, A., & Zvolensky, M.J. (2011). Multimethod Study of Distress Tolerance and PTSD Symptom Severity in a Trauma-Exposed Community Sample. *Journal of Traumatic Stress, 23*(5), 623-630.
- Martin, R.L., Houtsma, C., Bryan, A.O., Bryan, C.J., Green, B.A., Anestis, M.D., (2017). The impact of aggression on the relationship between betrayal and belongingness among U.S. military personnel. *Military Psychology, 29*(4), 271-282.
- National Center for Telehealth and Technology, Defense Centers for Psychological Health. (2015). Department of Defense Suicide Event Report (DoDSER): calendar year 2014 report.
- Nepon, J., Belik, S. L., Bolton, J., & Sareen, J. (2010). The relationship between anxiety disorders and suicide attempts: findings from the National Epidemiologic Survey on Alcohol and Related Conditions. *Depression and anxiety, 27*(9), 791-798.
- Podlogar, M.C., Houtsma, C., Khazem, L.R., Ringer, F., Mofield, T., Green, B.A., Anestis, M.D., Lim, I.C., & Joiner, T.E. (2017). The associations between Army National Guard versus Active Duty Soldier status and perceived burdensomeness, thwarted belongingness, and acquired capability. *Journal of Clinical Psychology, 73*(1), 1682-1691.
- Rimkeviciene, J., Hawgood, J., O’Gorman, J., De Leo, D. (2015). Assessment of acquired capability for suicide in clinical practice. *Psychology, Health & Medicine, 8*, 954-963.
- Rimkeviciene, J., Hawgood, J., O’Gorman, J., De Leo, D. (2017). Construct validity of the acquired capability for suicide scale: Factor structure, convergent and discriminant validity. *Journal of Psychopathology and Behavioral Assessment, 39*(2), 291-302.

- Sareen, J., Cox, B. J., Stein, M. B., Afifi, T. O., Fleet, C., & Asmundson, G. J. (2007). Physical and mental comorbidity, disability, and suicidal behavior associated with posttraumatic stress disorder in a large community sample. *Psychosomatic medicine*, *69*(3), 242-248.
- Sareen, J., Houlihan, T., Cox, B. J., & Asmundson, G. J. (2005). Anxiety disorders associated with suicidal ideation and suicide attempts in the National Comorbidity Survey. *The Journal of nervous and mental disease*, *193*(7), 450-454.
- Selaman, Z. M., Chartrand, H. K., Bolton, J. M., & Sareen, J. (2014). Which symptoms of post-traumatic stress disorder are associated with suicide attempts?. *Journal of anxiety disorders*, *28*(2), 246-251.
- Simons, J.S., Gaher, R.M. (2005). The distress tolerance scale: Development and validation of a self-report measure. *Motivation and Emotion*, *29*(2), 83-102.
- Steer, R.A., Rissmiller, D.B., Ranieri, W.F., & Beck, A.T. (1993). Dimensions of suicidal ideation in psychiatric inpatients. *Behaviour Research and Therapy*, *31*, 229-236.
- Stevens, D., Wilcox, H. C., MacKinnon, D. F., Mondimore, F. M., Schweizer, B., Jancic, D., ... Potash, J. B. (2013). Posttraumatic stress disorder increases risk for suicide attempt in adults with recurrent major depression. *Depression and Anxiety*, *30*(10), 940-946.
- Sundin, J., Fear, N. T., Iversen, A., Rona, R. J., & Wessely, S. (2010). PTSD after deployment to Iraq: conflicting rates, conflicting claims. *Psychological medicine*, *40*(03), 367-382.
- Terhakopian, A., Sinaii, N., Engel, C. C., Schnurr, P. P., & Hoge, C. W. (2008). Estimating population prevalence of posttraumatic stress disorder: an example using the PTSD checklist. *Journal of traumatic stress*, *21*(3), 290-300.
- Wang, P. S., Berglund, P., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Failure and delay in initial treatment contact after first onset of mental disorders in the

- National Comorbidity Survey Replication. *Archives of general psychiatry*, 62(6), 603-613.
- Weathers, F.W., Blake, D.D., Schnurr, P.P., Kaloupek, D.G., Marx, B.P., & Keane, T.M. (2013). *The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)*. Interview available from the National Center for PTSD at [www.ptsd.va.gov](http://www.ptsd.va.gov).
- Weathers, F., Litz, B., Herman, D., Huska, J., & Keane, T. (October 1993). *The PTSD Checklist (PCL): Reliability, Validity, and Diagnostic Utility*. Paper presented at the Annual Convention of the International Society for Traumatic Stress Studies, San Antonio, TX.
- Van Orden, K.A., Witte, T.K., Gordon, K.H., Bender, T.W., Joiner, T.E. (2008). Suicidal desire and the capability for suicide: tests of the interpersonal-psychological theory of suicidal behavior among adults. *Journal of Consulting and Clinical Psychology*, 76(1), 72-83.
- Van Orden, K.A., Cukrowicz, K.C., Witte, T.K., Joiner, T.E. (2012). Thwarted belongingness and perceived burdensomeness: construct validity and psychometric properties of the Interpersonal Needs Questionnaire. *Psychological Assessment*, 24(1), 197-215.
- Zvolensky, M.J., Berstein, A., & Vujanovic, A.A.(2010). *Distress tolerance*. New York: Guilford.