



# Distress Tolerance Moderates the Relationship between PTSD and Substance Use in a Sample of Inpatient Adolescents

Katy E. Barger, Emma C. Woodward, M.A., Elizabeth M. Raines, B.A., & Andres G. Viana, Ph.D., ABPP  
University of Houston



## Introduction:

- Adolescence is a high-risk period for trauma exposure (Lucio & Nelson, 2016) and a significant number of youth who experience a traumatic event develop posttraumatic stress disorder (PTSD; Alisic et al., 2014).
- PTSD symptoms are highly correlated with substance use disorders among adolescents (Adams et al., 2016).
- However, research regarding moderators of the PTSD-substance use association among adolescents is scarce.
- Distress tolerance, or the ability to withstand aversive psychological states (Simons & Gaher, 2005), may be one potential moderator (Potter et al., 2011).
- This study examined the moderating role of distress tolerance in the association between PTSD symptom severity and history of illicit substance use frequency in a sample of trauma-exposed inpatient adolescents.

## Method:

### Participants:

- 66 psychiatric inpatient adolescents (56.1% female; Mage = 15.02 years, SD = 1.41, range = 12 – 17 years) with exposure to at least one Criterion A traumatic event.
- 45.5% of the sample identified as White/European American, 39.4% as Black/African American, and 12.1% as multiracial.

### Measures:

- The Child PTSD Symptom Scale** (CPSS; Foa, et al., 2001)
- The Modified Youth Risk Behavior Survey** (M-YRBS; Brener et al., 2004)
- The Paced Auditory Serial Addition Task—computerized version** (PASAT-C; Lejuez, et al., 2003)
- The Children’s Depression Inventory** (CDI; Kovacs, 1992)

## Results:

**Table 1.**  
*Descriptive Statistics and Correlations for Study Variables (N=66)*

Variable	1	2	3	4	5	6
1. Depression	--					
2. PTSD	.57**	--				
3. Distress Tolerance	.01	.09	--			
4. Substance use	.02	.21	.13	--		
5. Age	-.33**	-.10	.07	.01	--	
6. Gender	.11	-.03	.16	.09	-.36**	--
	<i>M</i>	14.38	13.03	255.03	1.20	15.02
	<i>SD</i>	10.59	11.50	267.69	1.28	1.41

\* $p < .05$ .

\*\* $p < .01$ .

Substance Use=MYRBS ; Distress Tolerance= PASAT; Depression= CDI total; PTSD= CPSS

- Hayes’ (2012) PROCESS modeling was used to examine the moderating effect of distress tolerance on the relation between PTSD and substance use frequency in adolescents .
- The overall model was not significant,  $F(4, 61) = 2.3124, p < .07$ .
- However, the interaction between PTSD and distress tolerance was significant,  $B = .0001, p = .047; \Delta R^2 = .06 SE = .0001$ . Simple slopes revealed significant associations between PTSD and substance use among those with high (vs. low) distress tolerance.

**Table 2.**  
*Summary of Regression Analyses Predicting Substance Use Frequency From PTSD and Distress Tolerance (N=66)*

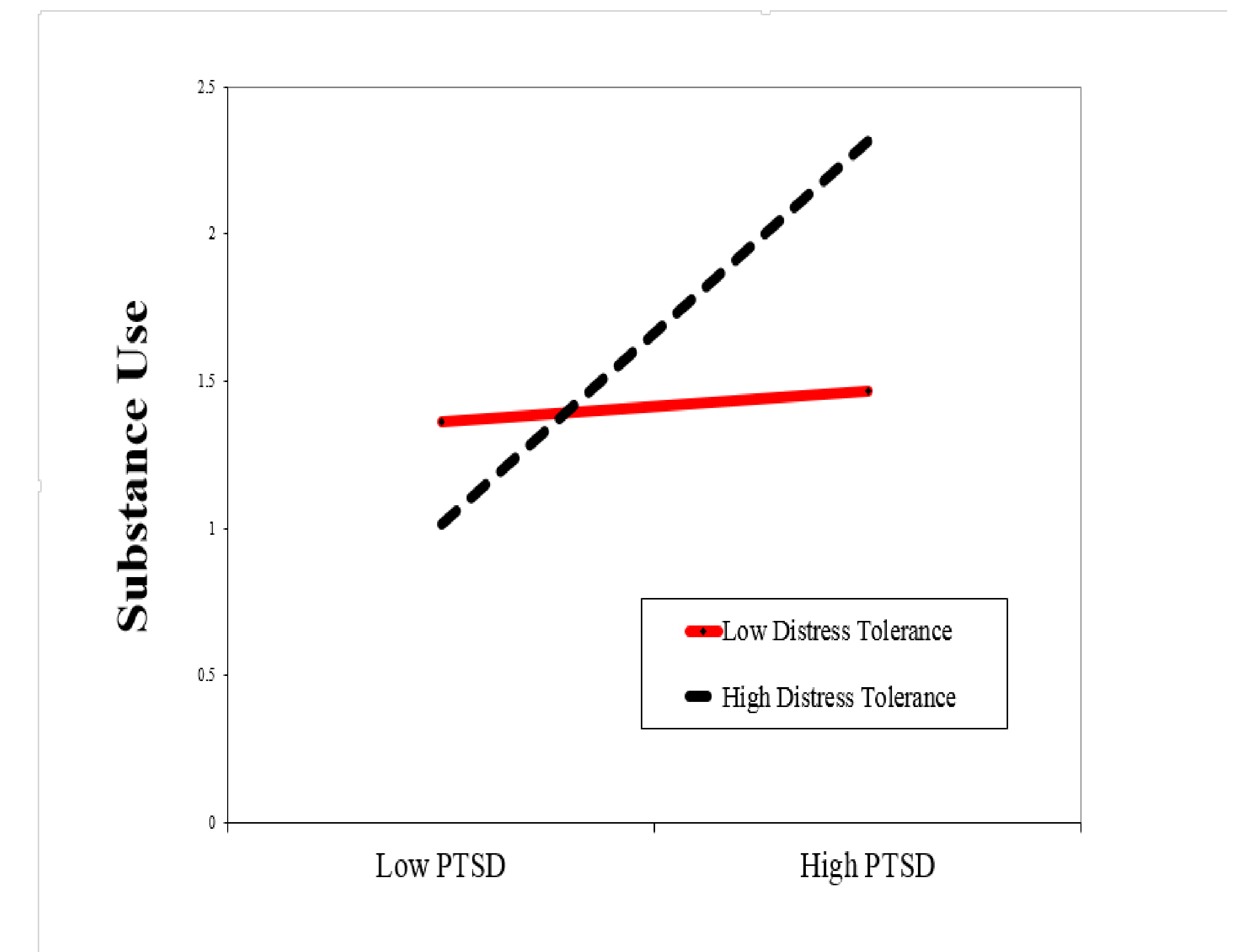
Variable	<i>y</i> <i>B</i>
Distress Tolerance	-.001
PTSD	.006
PTSD X Distress Tolerance	.0001*
<i>F</i>	2.3124
<i>R</i> <sup>2</sup>	.1317

\* $p < .05$ .

\*\* $p < .01$ .

## Results:

**Figure 1.**



## Discussion:

- Results indicate that there is not an overall significant positive relationship between adolescents PTSD and substance use frequency when moderated by distress tolerance ( $p = .07$ ).
- Although the overall model was not significant, there were significant conditional effects, such that the relation between PTSD and history of illicit drug use was significantly positive among adolescents with high (vs. low) distress tolerance.
- Results are inconsistent with studies showing that low distress tolerance increases risk for substance use (Tull, Gratz, Coffey, Weiss & McDermott, 2013). This discrepancy may be due to how distress tolerance was operationalized in this study (i.e., persistence in a frustrating task, instead of the ability to tolerate negative emotions).
- Increased ability to tolerate frustration during cognitively demanding tasks (PASAT) may represent a vulnerability factor for substance use among adolescents exposed to trauma.
- Replication with a larger sample is needed to test the generalizability of the findings.