

## Introduction

- PTSD is ‘a disorder that develops in some people who have experienced a shocking, scary, or dangerous event’ and affects the individual continuously (NIMH).
- Tonic Immobility (TI) is a ‘temporary state of motor inhibition’ as a response to dangerous or fearful circumstances (Abrams et. al. 2009).
- Types of childhood trauma that could result in PTSD include sexual abuse/assault, neglect, domestic violence, emotional abuse, etc (Center for Early Childhood Mental Health Consultation).
- Attachment theories explain that if children lack secure attachments when being reared, they are likely to suffer many difficulties throughout the rest of their adult life (Levy et. al.).
- Thus, traumatic or stressful events in childhood may influence threat responding and increase risk for PTSD.

## Abstract

Early childhood encompasses critical stages of cognitive development, and a child’s attachment to their caregivers plays a vital role. Traumatic, stressful, and unpredictable experiences with caregivers in childhood can shape how an individual responds to threats and potentially lead to mental health difficulties. There are three key elements of threat responding: fight, flight, and freeze. It is common for individuals to freeze when they first detect a threat and then prepare to deal with it by either fighting or fleeing the situation. However, in some threatening situations, freezing may persist. We refer to this prolonged freeze response as “tonic immobility”. Individual differences in threat responding, and tonic immobility specifically, have been linked to increased risk for posttraumatic stress disorder (PTSD). Therefore, the current study sought to examine the relationships between childhood experiences, threat responding, and PTSD. Female participants (N = 35) were recruited from the FSU SONA subject pool and the local community. As part of a larger experimental study, participants provided informed consent and completed questionnaires assessing demographic information, adverse childhood experiences, childhood unpredictability and harshness, fight flight freeze tendencies, experiences of tonic immobility, and PTSD symptoms. Correlations suggest that adverse childhood experiences, unpredictability, and harshness are associated with experiences of tonic immobility and PTSD symptoms. However, only childhood unpredictability was uniquely related to tonic immobility. Meanwhile, childhood harshness uniquely predicted flight tendencies. Experiences of tonic immobility and freeze tendencies predicted higher PTSD symptoms. These findings provide evidence for the impact of childhood experiences on threat responding and PTSD.

## Discussion

- Tonic immobility severity increased with childhood unpredictability.
- Childhood harshness predicted flight tendencies.
- Adverse childhood experiences, harshness, and unpredictability were all associated with increased PTSD symptoms.
- Freeze tendencies uniquely predicted PTSD symptoms.
- This study provides evidence that experiencing traumatic and stressful events in childhood may influence threat responding and increase risk for PTSD.

### Limitations

- Relied on retrospective self-report measures, allowing for the faultiness of memory to impact the accuracy of the data.
- Small sample size limits power and generalizability

### Future Directions

- We will continue to collect data to gather a larger sample
- Future studies should examine these relationships longitudinally

## Method

### Participants

- 35 adult females
  - M age = 20.11, SD = 5.49
- 3 groups:
  - TI experience,
  - Trauma with no TI
  - Healthy Control

### Procedures

- Informed consent
- Qualtrics survey
- Part of a larger experimental study

### Measures

- Tonic Immobility Questionnaire (TIQ; Abrams et al., 2009)
  - 12 items examining fear, dissociation, and physical immobility during TI
- Fight Flight Freeze Questionnaire (FFFQ; Maack et al., 2015)
  - 21 items assessing fight, flight, and freeze tendencies
- Posttraumatic Stress Checklist for DSM-5 (PCL-5; Belvins et al., 2015)
  - 20-items, evaluating PTSD symptoms on a continuum
- Adverse Childhood Experiences Questionnaire (ACEs; Felitti et al., 1998)
  - 10 items, “yes” or “no,”
  - Assesses neglect, abuse, and flawed caregiver tendencies experienced during childhood.
- Childhood Harshness & Unpredictability (CHU; Maranges et al., 2022)
  - Assess perceptions of unpredictability and harshness experienced during childhood

## Results

Table 2. Pearson correlations between childhood experiences, threat responses, and PTSD symptoms

	1.	2.	3.	4.	5.	6.	7.	8.
1. TIQ	-	-	-	-	-	-	-	-
2. Freeze	.386	-	-	-	-	-	-	-
3. Fight	.105	.126	-	-	-	-	-	-
4. Flight	.393	.371	.336*	-	-	-	-	-
5. PTSD	.535*	.441*	.229	.275	-	-	-	-
6. ACE	.485*	.250	-0.10	.150	.565*	-	-	-
7. CHU	.666*	.272	-0.62	.398*	.582*	.714*	-	-
8. CHH	.486*	.424*	-0.26	.502*	.351*	.501*	.611*	-

Note. \*p < .05

### Results from multiple linear regressions:

- Tonic Immobility severity (n=18)
  - Childhood unpredictability predicted significantly higher scores on the TIQ among individuals with a TI experience (t = 2.16, b = 2.99, p = .048), but harshness and ACEs did not.
- Freeze Tendencies (n=35)
  - No significant predictors
- Fight Tendencies (n=35)
  - No significant predictors
- Flight Tendencies (n=35)
  - Childhood harshness uniquely predicted flight tendencies (t = 2.37, b = 0.45, p = .024)
- PTSD symptoms (n = 35)
  - Freeze tendencies uniquely predicted PTSD symptoms tendencies (t = 2.32, b = 0.39, p = .027)

Table 1. Participant Characteristics

		n (%)
Gender	Woman	33 (94.3%)
	Non-binary	2 (5.7%)
Sexual Orientation	Heterosexual	24 (68.6%)
	Bisexual	5 (14.3%)
	Not sure	5 (14.3%)
	Other	1 (2.9%)
Race	Caucasian/White	28 (80.0%)
	Black/African American	5 (14.3%)
	Asian	5 (14.3%)
	Other	1 (2.9%)
Ethnicity	Hispanic/Latino(a)	9 (25.7%)

## References

- Abrams, M. P., Nicholas Carleton, R., Taylor, S., & Asmundson, G. J. (2009). Human tonic immobility: measurement and correlates. *Depression and anxiety*, 26(6), 550-556.
- Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of traumatic stress*, 28(6), 489-498.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14(4), 245-258.
- Levy, T. M., & Orlans, M. (1998). Attachment, Trauma, and Healing: Understanding and Treating Attachment Disorder in Children and Families. Child Welfare League of America, c/ PMDS, 9050 Junction Drive, PO Box 2019, Annapolis Junction, MD 20701-2019.
- Maack, D. J., Buchanan, E., & Young, J. (2015). Development and psychometric investigation of an inventory to assess fight, flight, and freeze tendencies: The fight, flight, freeze questionnaire. *Cognitive Behaviour Therapy*, 44(2), 117-127.
- Maranges, H. M., Hasty, C. R., Martinez, J. L., & Maner, J. K. (2022). Adaptive Calibration in Early Development: Brief Measures of Perceived Childhood Harshness and Unpredictability. *Adaptive Human Behavior and Physiology*, 8(3), 313-343.
- “Post-Traumatic Stress Disorder.” *National Institute of Mental Health*, U.S. Department of Health and Human Services, May 2022, <https://www.nimh.nih.gov/health/topics/post-traumatic-stress-disorder-ptsd>.