

Introduction

Experiencing a traumatic event can lead to psychological, and physiological effects. Following the devastating events of October 7th, over 30% of Israelis screened positive for post-traumatic stress disorder (PTSD)¹. Interoception, i.e., sensing the body from within, is a core element in mental disorders², as in trauma-related symptoms. Combining multidimensional measurements of Interoception is lacking in PTSD studies³. This study examines the interplay between physiological responses, interoceptive accuracy, and interoceptive sensibility and their relationships with trauma-related symptoms (A). These preliminary results serve as our control, laying the foundations for the NOVA festival survivors cohort.

A. Interoceptive Measurements

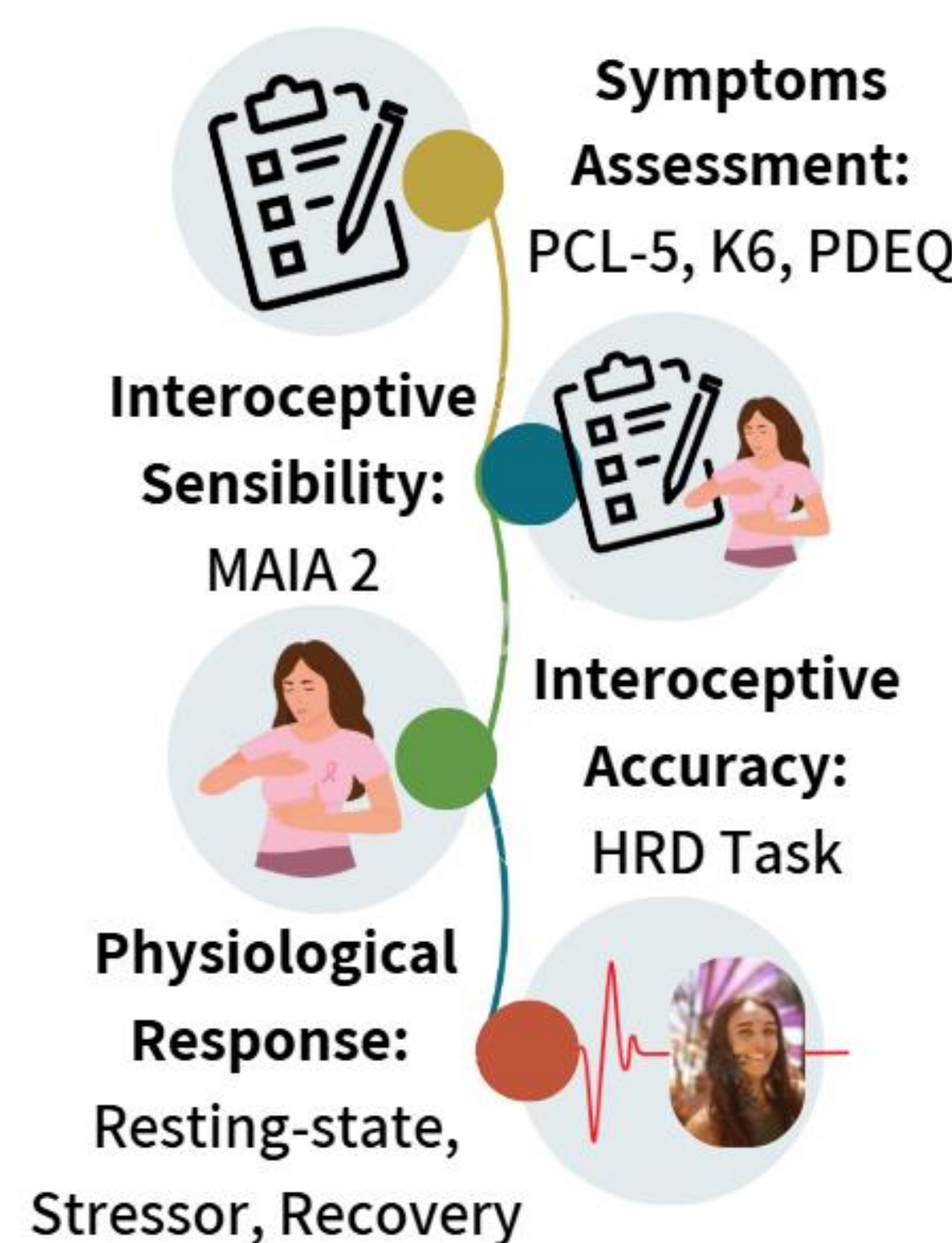
Physiological response:
What happens in the body?
Interoceptive sensibility:
How does the agent assess his interoceptive abilities?
Interoceptive accuracy:
Does the agent perceive the body correctly?

Coping with trauma

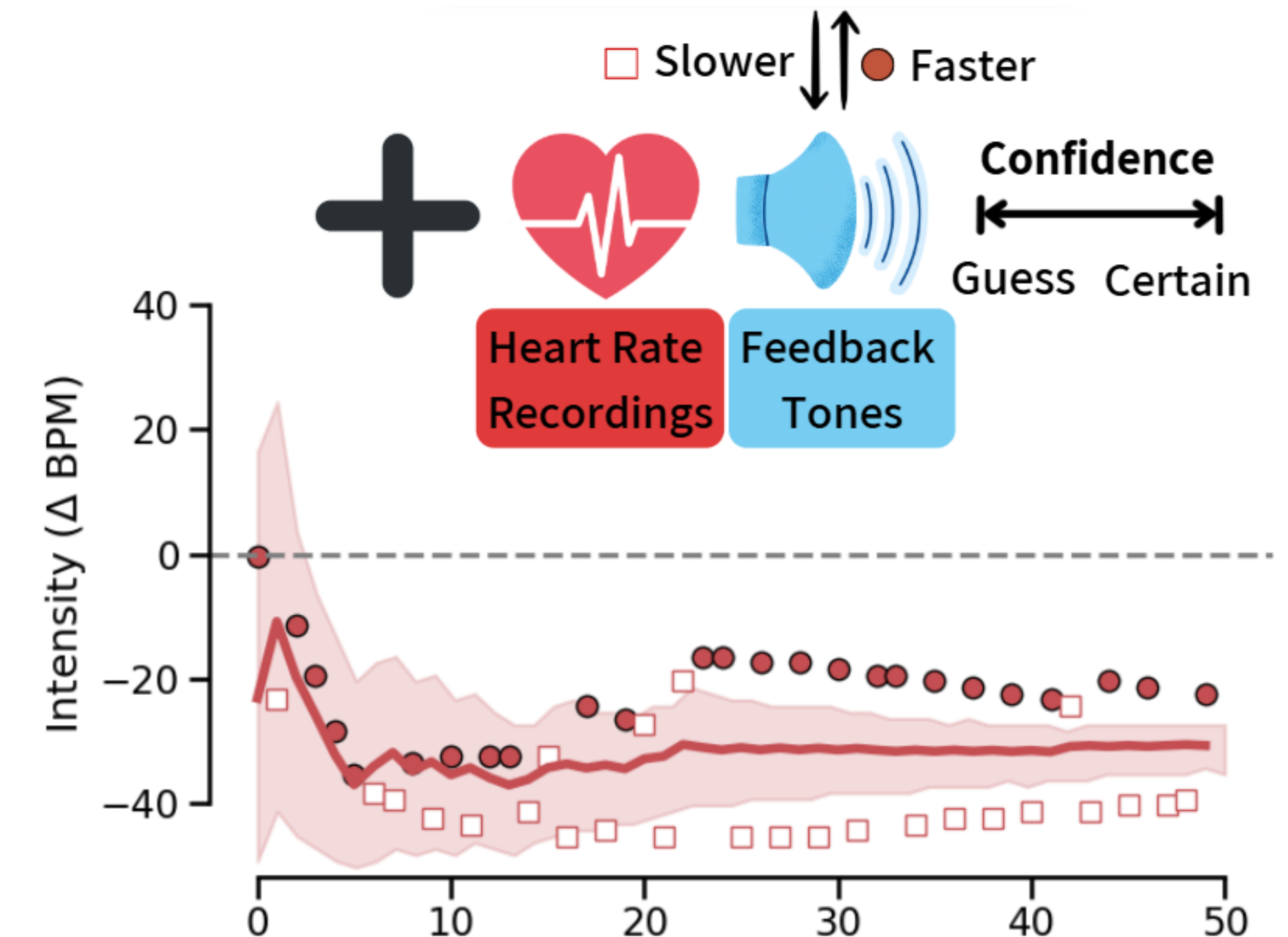
Methods

This study included 38 adults (55% male, $M = 28.5 \pm 5.7$ years), with data collected 9–12 months after the “Haravot-Barzel” war began. The procedure contained four parts (B). First, participants completed self-report questionnaires assessing PTSD symptoms (PCL-5), mental distress (K6), dissociation (PDEQ), a single-item measure of overwhelm since October 7th, and interoceptive sensibility (MAIA-2). Interoceptive accuracy was measured using a heart rate discrimination (HRD) task⁴, where participants compared heart-tone and tone-tone stimuli (C). Lastly, heart activity was recorded during resting, exposure to a stressor movie (NOVA festival), and a recovery phase, each lasting six minutes.

B. Procedure



C. Heart Rate Discrimination Task Heart-Tone Condition



Results

D. Symptoms Correlation

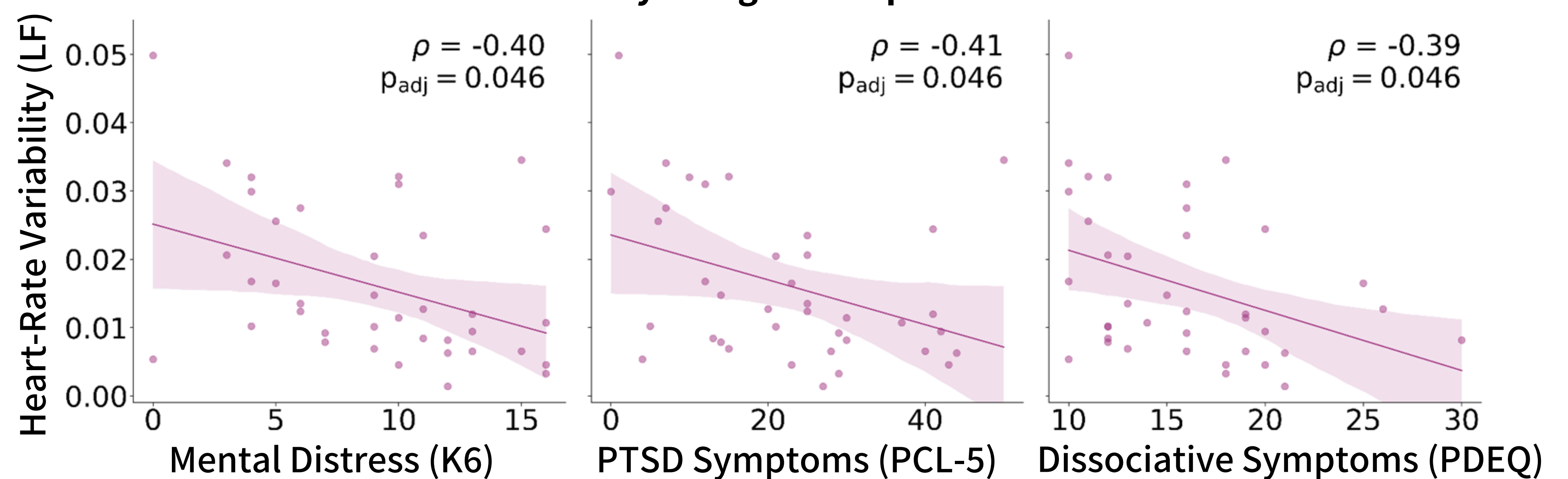
Overwhelmed				
Dissociative Symptoms (PDEQ)	0.63*			
PTSD Symptoms (PCL-5)	0.74*	0.72*		
Mental Distress (K6)	0.8*	0.68*	0.8*	
	Overwhelmed	PDEQ	PCL-5	K6

E. Interoceptive Sensibility

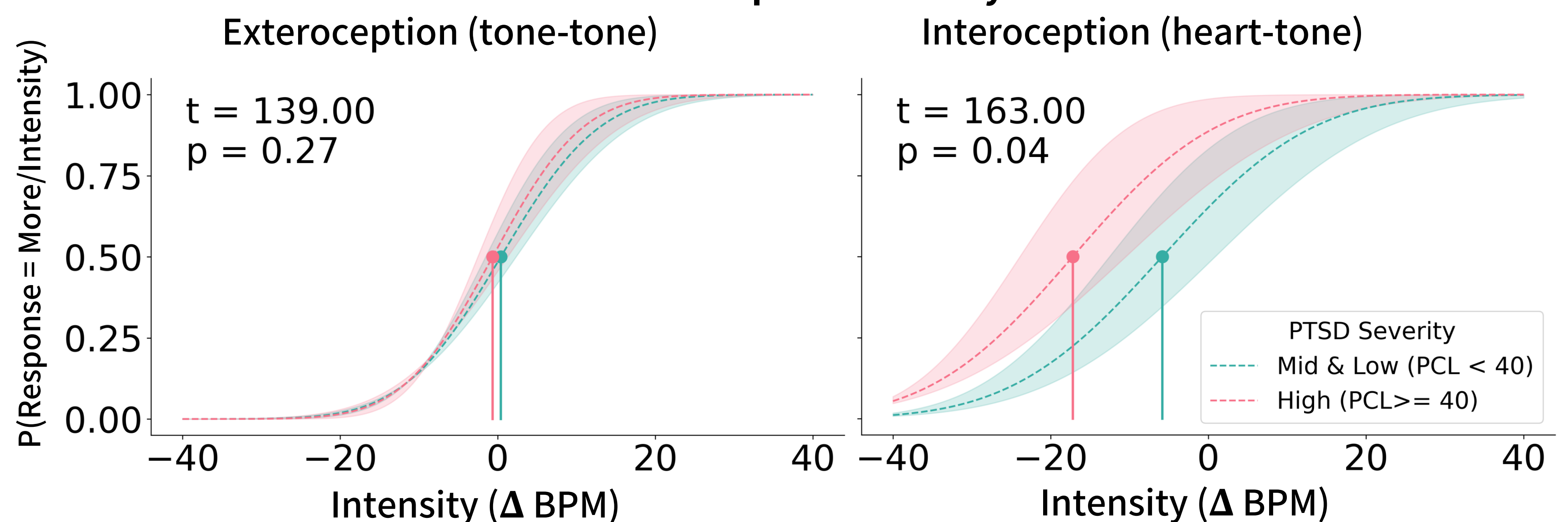
	Overwhelmed	PDEQ	PCL-5	K6
Attention Regulation (MAIA-2)	-0.34*	-0.39*	-0.29	-0.38*

In this cohort, 42.1% screened positive for at least one measured symptom. Symptoms were intercorrelated (D). Exploratory analysis indicated that the MAIA-2 regulation attention scale negatively correlated with severity symptoms (not corrected for multiple comparisons) (E). The MAIA-2 regulation attention scale positively correlates with low frequency of heart-rate variability (LF-HRV) during exposure to a stressor and significantly differs from the resting state (F). LF-HRV negatively correlates with symptom severity during exposure to a stressor (G), and did not significantly differ from the resting state. Heartbeat estimation bias was significantly higher in individuals with greater PTSD symptom severity (H).

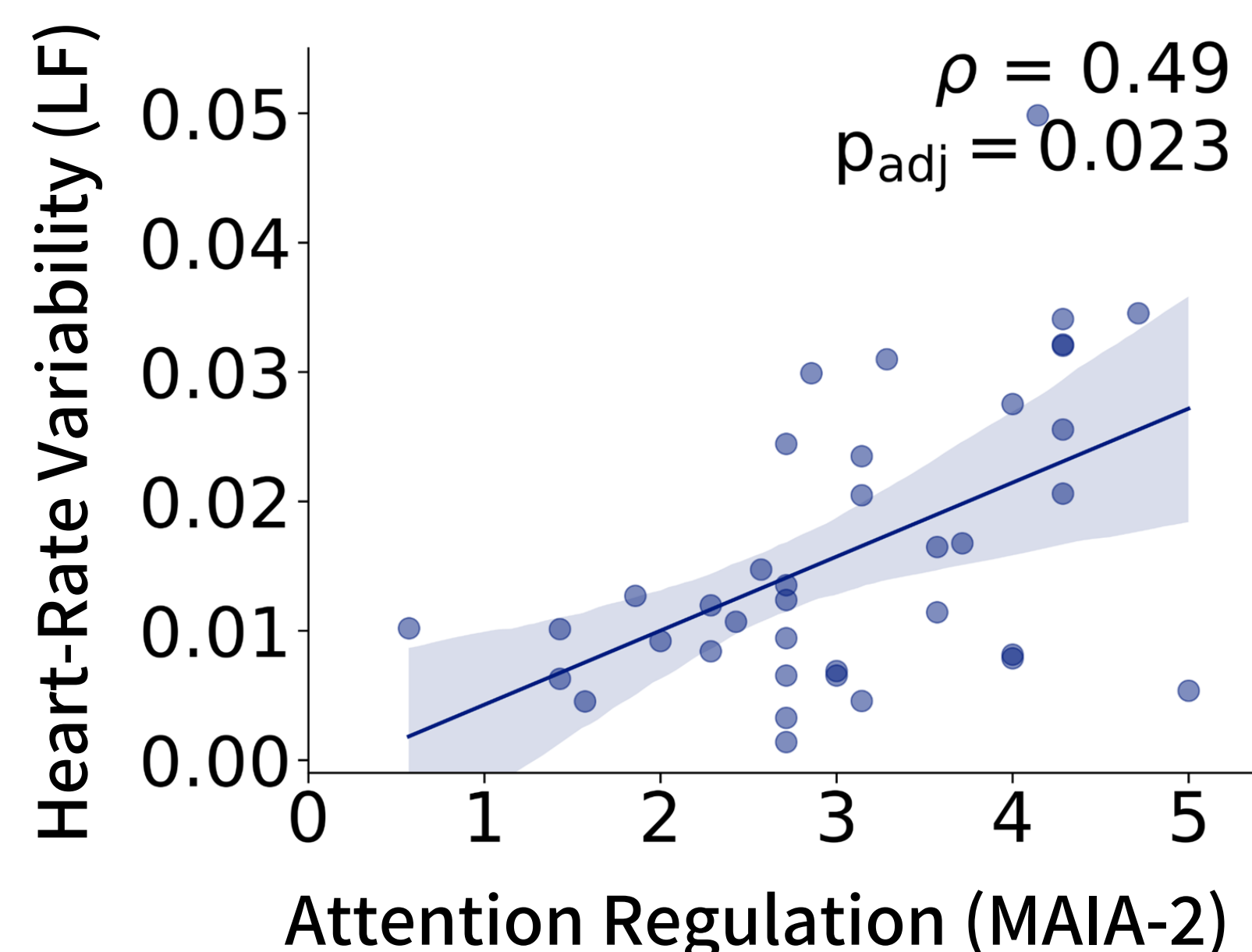
G. Physiological Response



H. Interoceptive Accuracy



F.



Conclusions

- LF-HRV physiological response negatively correlated with trauma-related symptoms.
- Interoceptive sensibility levels (MAIA-2) negatively correlated with trauma-related symptoms and positively correlated with LF-HRV.
- High PTSD symptoms were linked to interoceptive accuracy disruption.
- Our findings underscore the importance of interception in trauma-related symptoms.

References

- Levi-Belz et al. (2024), eClinicalMedicine, 68.
- Khalsa et al. (2018), Biol. Psychiatry Cogn. Neurosci. Neuroimaging, 3, 501–513.
- Gualtieri et al. (2025), Int. J. Cogn. Behav. Ther., 1–28.
- Legrand et al. (2022), Biol. Psychol., 168, 108239.

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