

Too Anxious to Regulate: The Effect of an Ongoing Stressor on Instructed Emotion Regulation

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For Further Information

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Introduction

- Emotion regulation has important implications for social and emotional well being (Gross & Oliver, 2003), but successful regulation is likely dependent on availability of cognitive resources (Schmeichel, 2007).
- Little is known about how anxiety induced by an ongoing stressor may disrupt emotion regulation.
- Previous studies have shown that the late positive potential (LPP) component of the event-related potential is sensitive to emotion regulation in response to emotional images (Moser et al., 2009).
- To test how state anxiety influences ability to regulate emotions, we had participants complete an instructed emotion regulation task, once while experiencing an infrequent, unpredictable shock, and once while safe.
- We hypothesized that participants would have more difficulty regulating their emotions when under threat of shock and, as a result, would show no difference in the magnitude of the LPP on trials when they were down-regulating their emotional response toward vs. passively viewing a negative image, but that participants would show a smaller LPP when down-regulating vs. viewing a negative image, when not under threat of shock.
- As past research on misattribution has shown that emotional arousal from a stressor can increase the emotional reaction to a different stimulus (Dutton & Aron, 1974), especially when the cause of the stress is not readily apparent, we also predicted that LPP would be higher while participants were in the threat condition, across all regulation conditions.

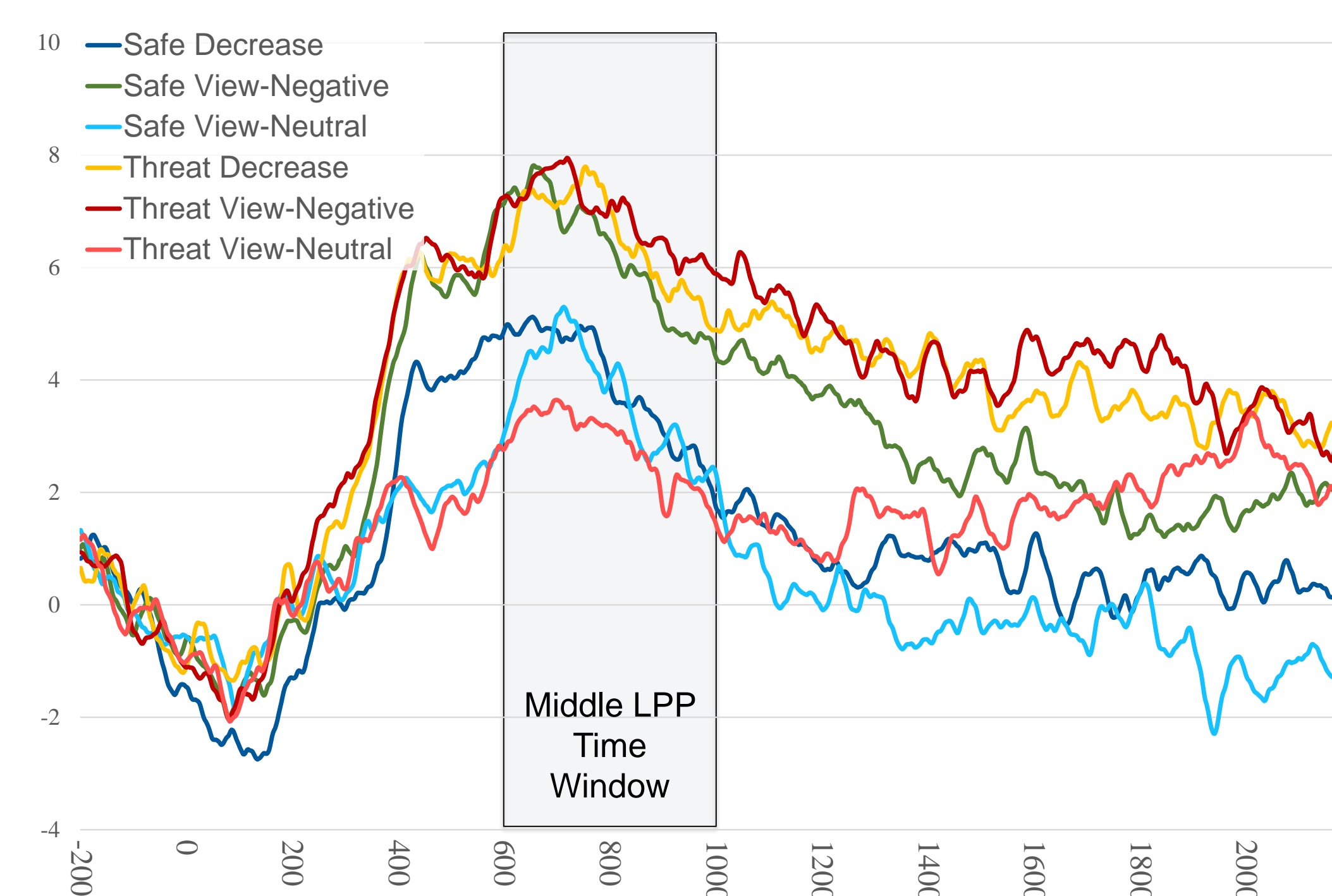
Methods

- 24 UWM students participated (11 Safe Block first, 13 Threat Block first).
- Participants were shown negatively valenced pictures while being asked to down regulate their emotions (Decrease) on some trials and to simply view the image (View-Negative) on others. On other trials, participants were asked to view a neutral image (View-Neutral).
- Participants completed two blocks of this task, one while experiencing an infrequent, unpredictable shock (Threat Block), and one while experiencing no shock (Safe Block).
- Order of blocks was counterbalanced (Safe Block First vs. Threat Block First).

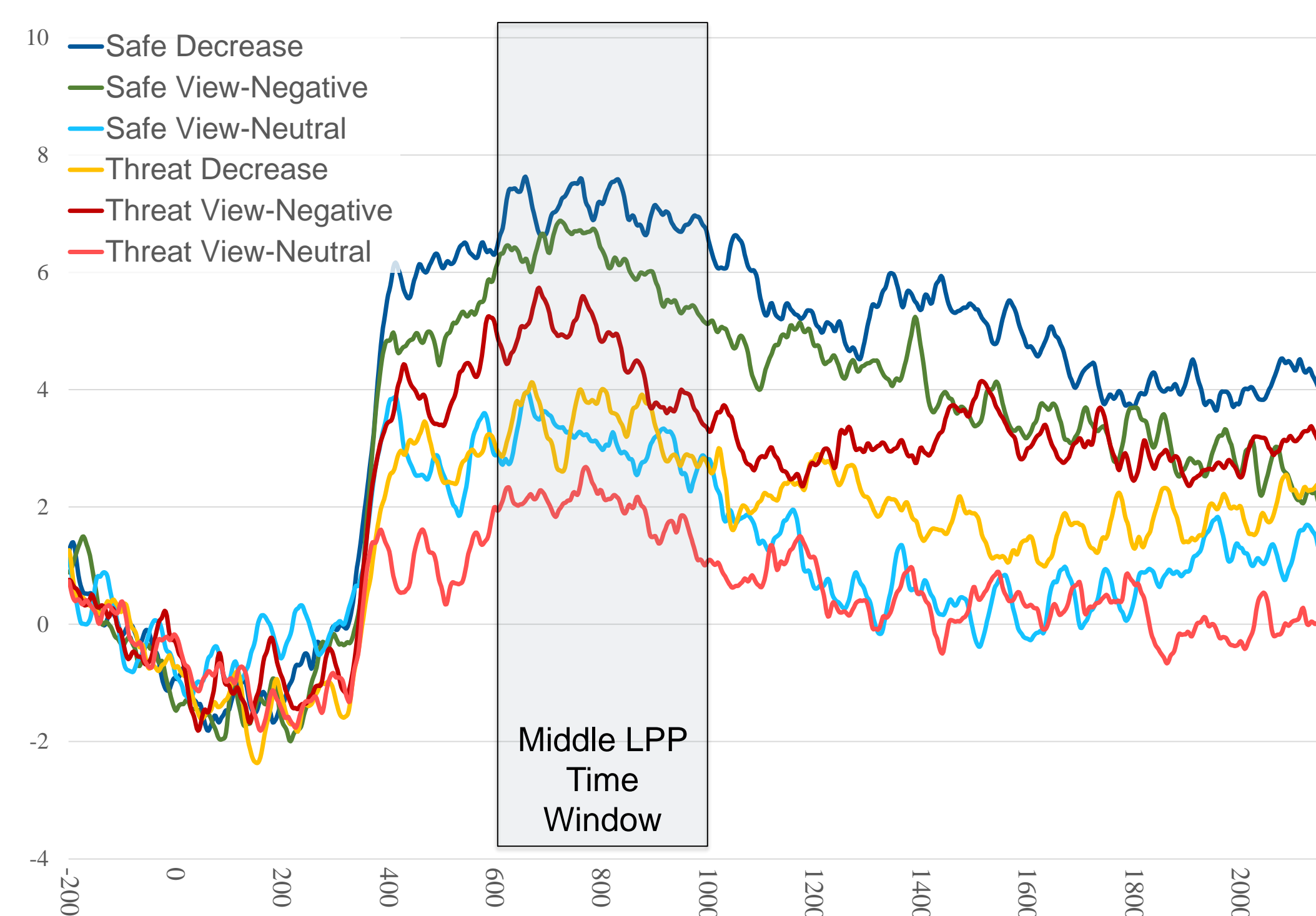
Analysis

- EEG data was recorded continuously at 32 sites
- Data was band pass filtered (.05-30 hz)
- Artifact correction based on Independent Component Analysis was used to remove eye blinks and horizontal eye movements.
- Data was baseline corrected to the 200 s prior to image onset
- Trials containing artifacts larger than 100 μ v were rejected
- The 2 seconds following picture onset were averaged for each condition to allow for visual inspection.
- Mean amplitude for each condition was extracted for three time windows for statistical analysis (400-600 ms, 600-1000 ms, 1000-2000 ms).

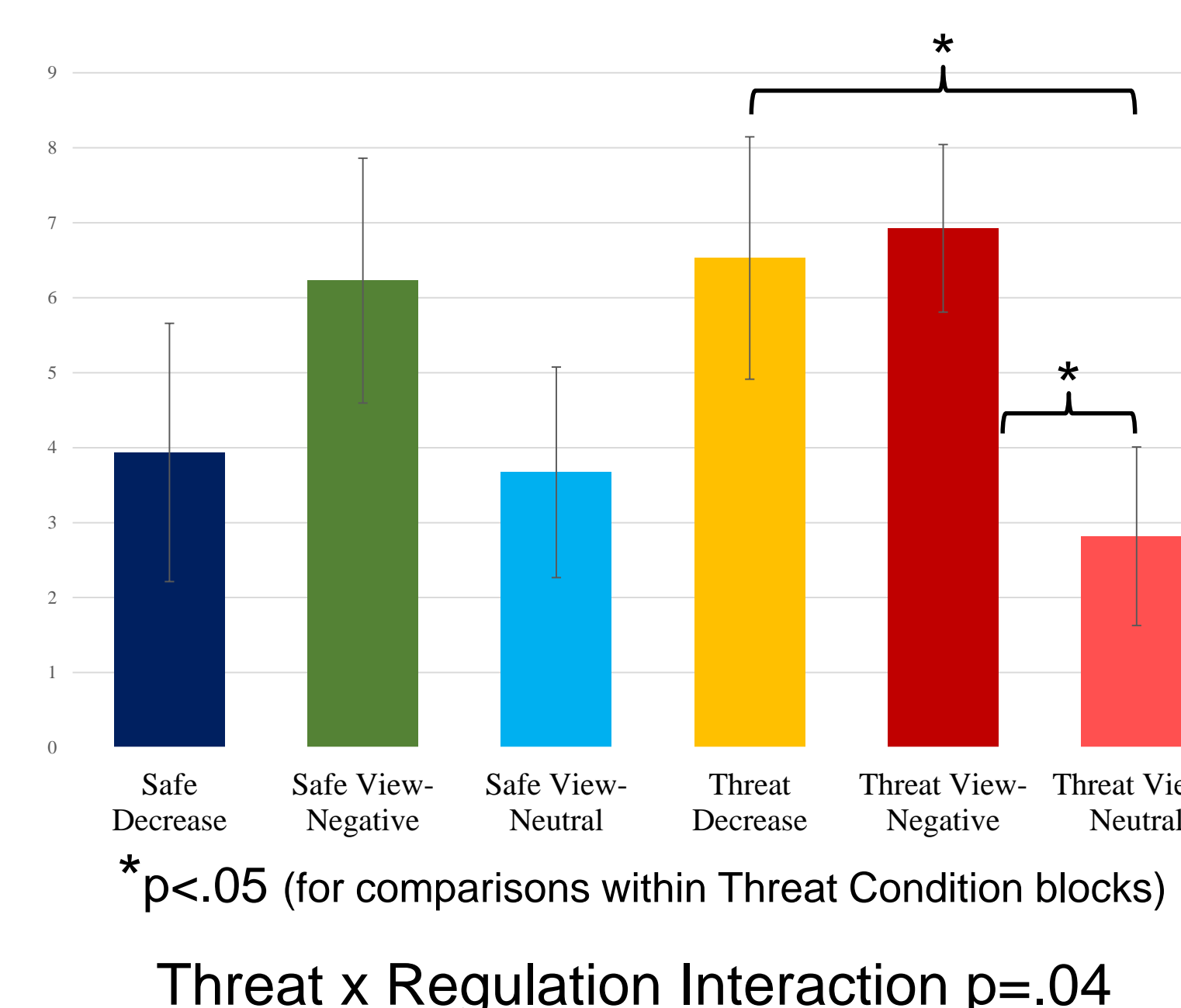
Group Mean Waveform at Picture Onset at Electrode Pz for Subjects Who Received the Safe Block First



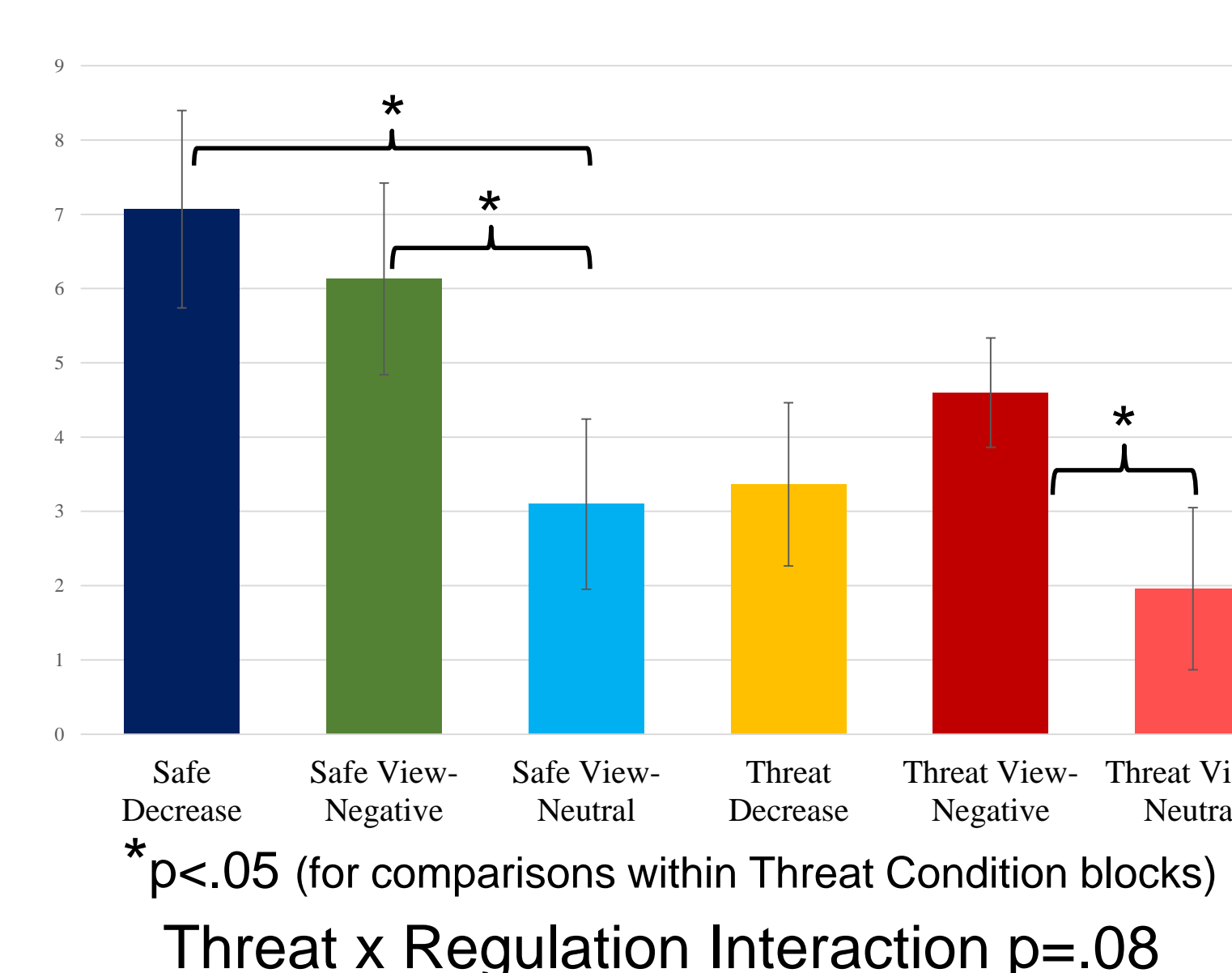
Group Mean Waveform at Picture Onset at Electrode Pz for Subjects Who Received the Threat Block First



Mean Amplitude For Middle LPP Time Window – Safe Block First



Mean Amplitude For Middle LPP Time Window – Threat Block First



Results

- Significant Threat X Regulation X Order interaction in the middle LPP time window*.
- Participants who received the Safe Block first regulated more successfully during the Safe Block, than the Threat Block ($p = .04$).
- Participants who received the Threat Block first trended toward showing better regulation during the Threat Block, but this interaction was not significant ($p = .08$).
- Participants who received the Threat Block first showed greater emotional reactivity during the Safe (vs. Threat) Block, regardless of Regulation condition ($p = .02$), but those who received the Safe Block first showed no main effect for the Threat vs. Safe contrast ($p = .41$).

*Here we focus on results for the middle LPP time window, as this time window had the most robust effects. Effects for early LPP were similar, but marginally significant. Effects for late LPP were non-significant.

Conclusion

- Findings for the Safe Block First condition support our hypothesis that an anxiety inducing stressor disrupts emotion regulation.
- Alternatively the more successful emotion regulation in the Safe Block during the Safe Block First condition may be explained by fatigue induced during the first block affecting regulation during the second block (see Schmeichel, 2007).
- When the Threat Block was first, anxiety induced by the shock may have carried over into the Safe Block. Since the cause of this anxiety was not readily apparent, participants may have misattributed their emotional arousal as being due to the images. This would explain why participants appear to have had a greater emotional reaction to the images during the Safe Block, when it followed the Threat Block (see Dutton & Aron, 1974).

Literature Cited

- Dutton, D. G., & Aron, A. P. (1974). Some evidence for heightened sexual attraction under conditions of high anxiety. *Journal of Personality and Social Psychology*, 30, 510-517.
- Moser, J. S., Most, S. B., & Simons, R. F. (2010). Increasing negative emotions by reappraisal enhances subsequent cognitive control: A combined behavioral and electrophysiological study. *Cognitive, Affective & Behavioral Neuroscience*, 10, 195-207.
- Schmeichel, B. J. (2007). Attention control, memory updating, and emotion regulation temporarily reduce the capacity for executive control. *Journal of Experimental Psychology: General*, 136, 241-255.

Study Flow

