

Press the **Red** Button: Psychological and Physiological Antecedents and Outcomes in a Decision-Making Task



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INTRODUCTION

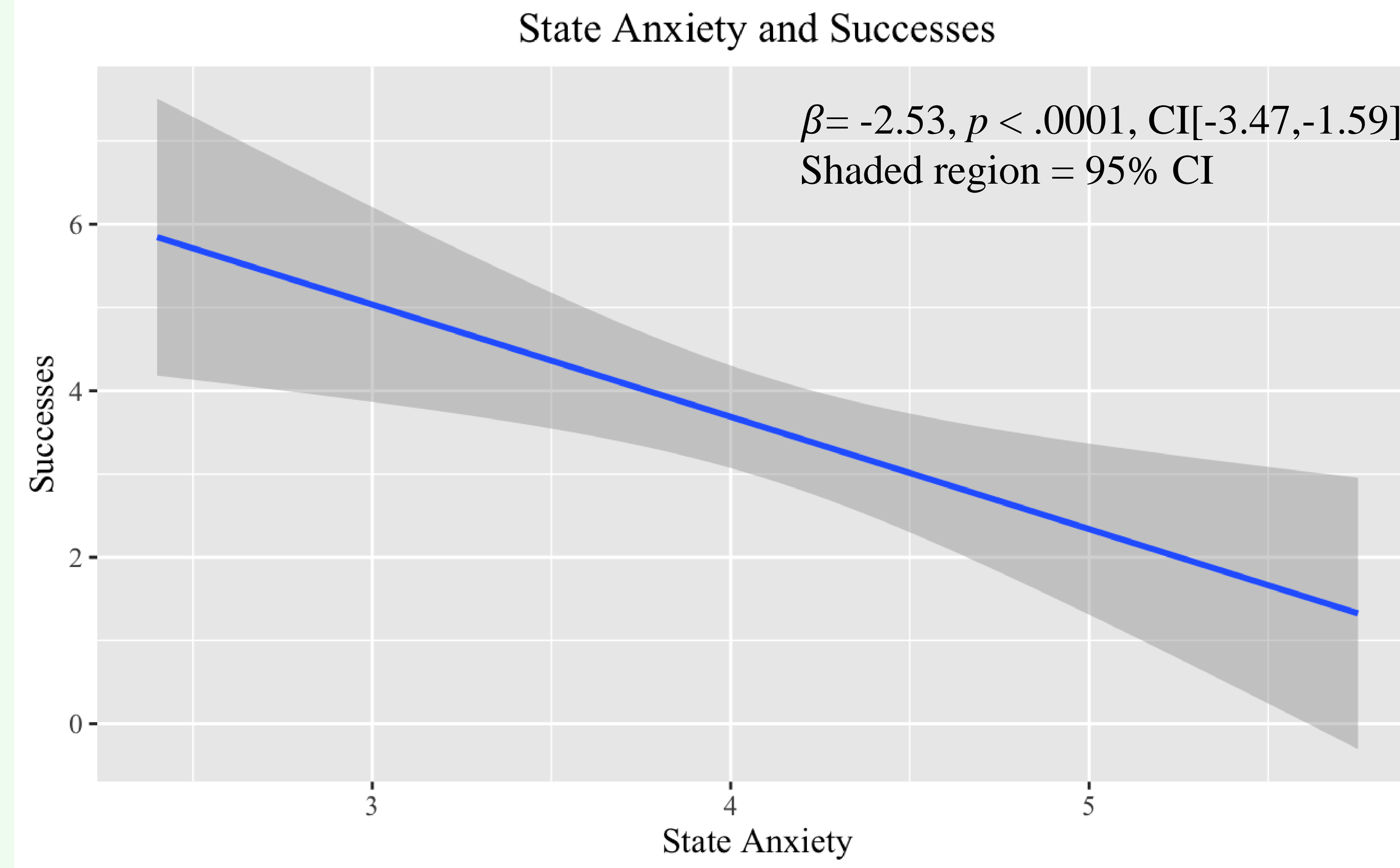
- Based on the game simulation "Keep Talking and Nobody Explodes," The Bomb Defusal Task (BDT) measures performance in stressful work environments.
- The HACD Lab investigates how performance, physiological markers, and self-efficacy contribute to perceived team trust. Research shows correlations among affect, team trust, performance, general self-efficacy (GSE), and state/trait anxiety. Based on literature, we propose:
 - Teams with lower anxiety will have greater performance on the task
 - Teams with higher performance will have higher HRV.
 - Individuals with greater state/trait anxiety will be less likely to trust their teammate.
 - Individuals in teams with greater individual perceptions of team trust will perform better.
 - Teams with higher levels of NA will get less successes

METHODS

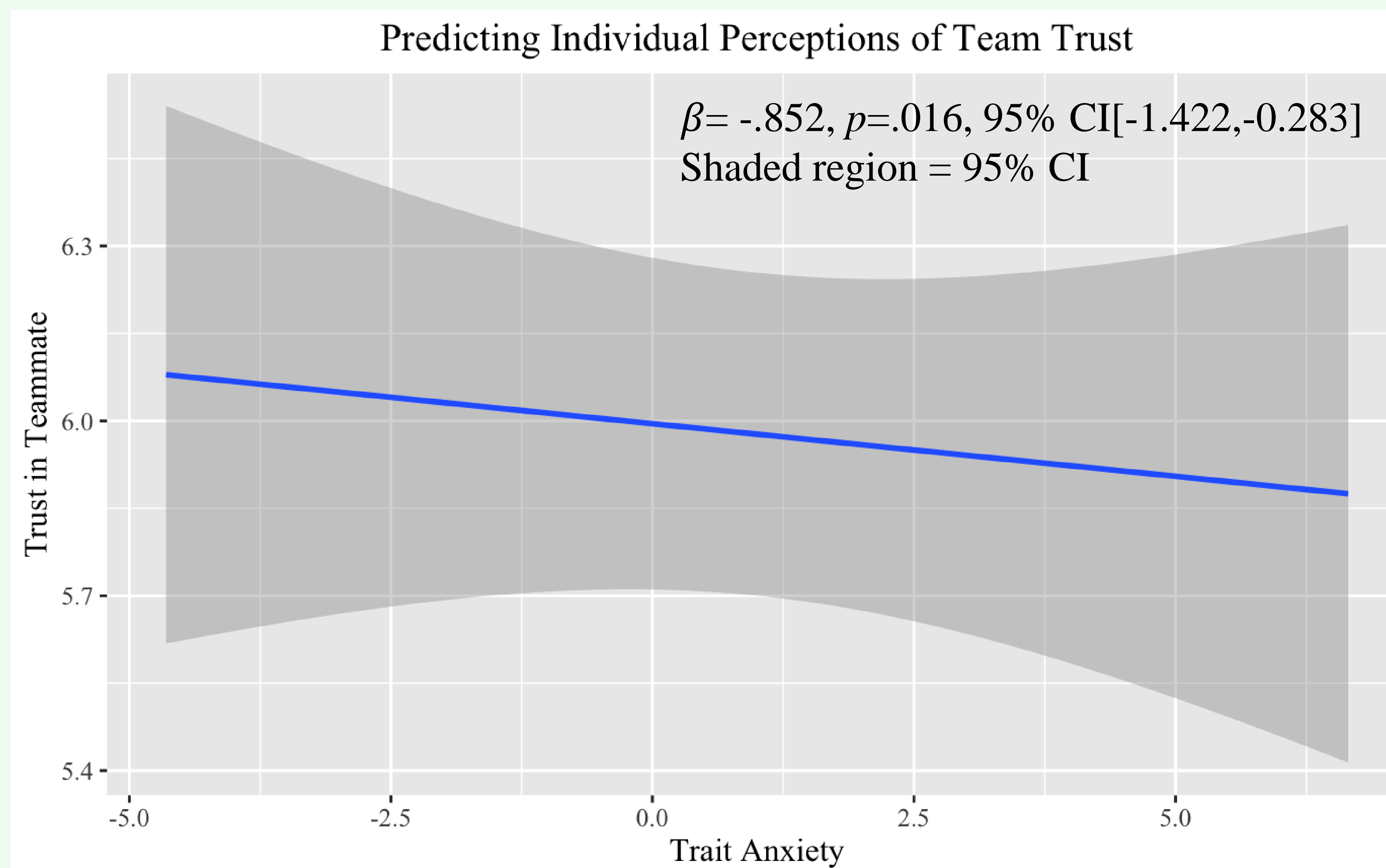
Participants: Preliminary sample of 51 college students

Procedure:

- In teams of 2, participants completed a Bomb Defusal Simulation Task. Roles included sender and receiver. During the task, physiological variables were recorded to measure arousal. Surveys were given to participants before and after the task to assess mood, personality traits, and engagement within tasks.
- ECG/EKG technology used for HR
- Positive and Negative Affective Schedule (Watson et al., 1988)
- State-Trait Anxiety Inventory (Spielberger et al., 1983)
- General Self-Efficacy Scale (Chen et al., 2001)



Dyadic multi-level model showing state anxiety of sender ($\beta = -2.53, p < .0001$) and receiver ($\beta = -0.06, p = .90$) relationship with team-level performance



Actor-Partner Interdependence Model (APIM) of a relationship between actor trait-level anxiety and trust in their partner

RESULTS

- A multi-level regression in R found that team state anxiety accounted for 59% of the variance in team successes. Thus, state anxiety was a significant predictor. The 95% confidence interval (grey shading) illustrates high levels of confidence.
- An APIM examined impacts of the partner on the actor. The "actor" is whoever we are analyzing, so it can take on the value of either the sender or the receiver. The APIM found that trait anxiety of the actor negatively impacted their likelihood to trust their partner.

DISCUSSION

- State anxiety in the sender role has a significant negative relationship with task success. Moreover, trait anxiety negatively predicted trust in one's partner.**
- HRV and NA were not significant. Variance captured in these variables is likely encompassed by anxiety, masking its relationship with performance
- GSE showed insignificant correlations perhaps because it did not measure task-specific self-efficacy.
- Shed light on the nuances in anxiety in dyadic team performance
- This task serves as a potential avenue for identifying individuals with high performance under stress, particularly in tasks where working with a partner is necessary.

Limitations & Future Directions

- Small sample size, additional data pending
- Controlling for baseline physiological markers pending