

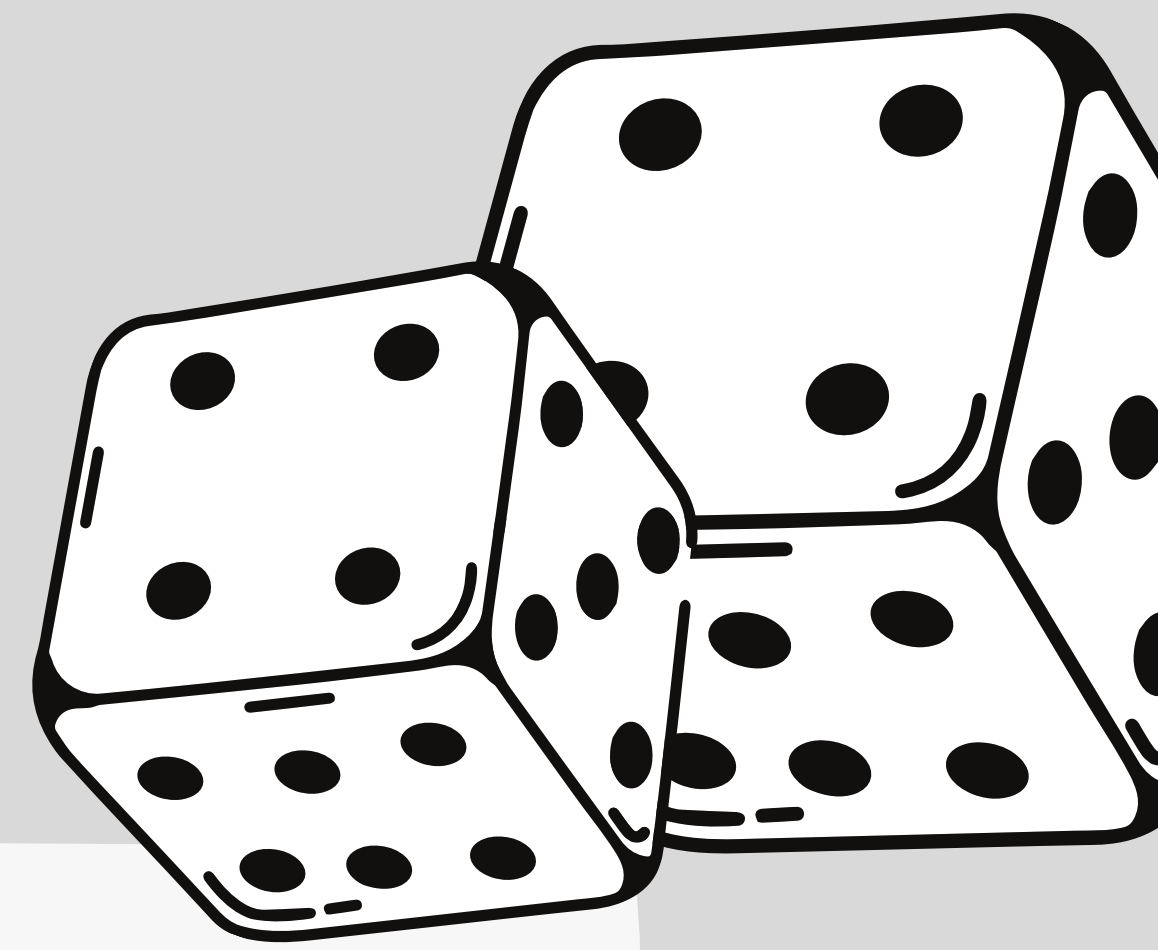


# EXPLORING THE LINK BETWEEN IMPULSIVITY AND RISKY DECISION-MAKING

## USING THE UPPS-P IMPULSIVE BEHAVIOR SCALE

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### BACKGROUND

- Acting without forethought = Particularly characteristic individuals prone to impulsive behavior
- Understanding how impulsivity influences decision-making, especially in risky contexts, is essential for understanding the behavioral manifestation of personality traits.
- Prior research:** identified a relationship between impulsivity and an increased likelihood of selecting a risky option over a certain one [1].
- In this study:** aimed to determine the association between impulsivity, measured by the UPPS-P Impulsive Behavior Scale [2], and risky choice decision-making measured by a risky choice paradigm [1;3].

### HYPOTHESIS

- Individuals with **HIGH impulsivity** would exhibit a **GREATER likelihood** of **choosing the risky option**.
- Individuals with **HIGH impulsivity** = score **HIGH** on emotionality; measured by the **Urgency** domain of the UPPS-P.
- Making the **RISKY choice** would be made with **FASTER reaction times** compared to less impulsive individuals.

### METHODS

#### Participants:

Recruited from Prolific online platform

- 142 (58 females; 84 males)

#### Measures:

- UPPS-P Impulsive Behavior Scale [4]
- Risky choice probability (P(Risky))
- Reaction time (RT) for choosing the risky option

#### UPPS-P Impulsive behavior scale subscales [4]:

**What is it?** It's a self-reported impulsivity traits. 59 items distributed across five subscales. Subjects respond to each item on a 4-point Likert scale.

#### Subscales measure the tendency to:

Negative Urgency: act rashly in response to negative emotions

- "When upset, I often act without thinking."

Positive Urgency: act impulsively under extreme positive emotions

- "When excited, I tend to do things without thinking."

Lack of Premeditation: act without considering the consequences

- "I tend to act without thinking."

Lack of Perseverance: disengage from tasks that are boring or difficult

- "I tend to give up easily."

Sensation Seeking: have a desire for exciting and novel experiences

- "I enjoy taking risks."

#### Analysis:

Linear regression:

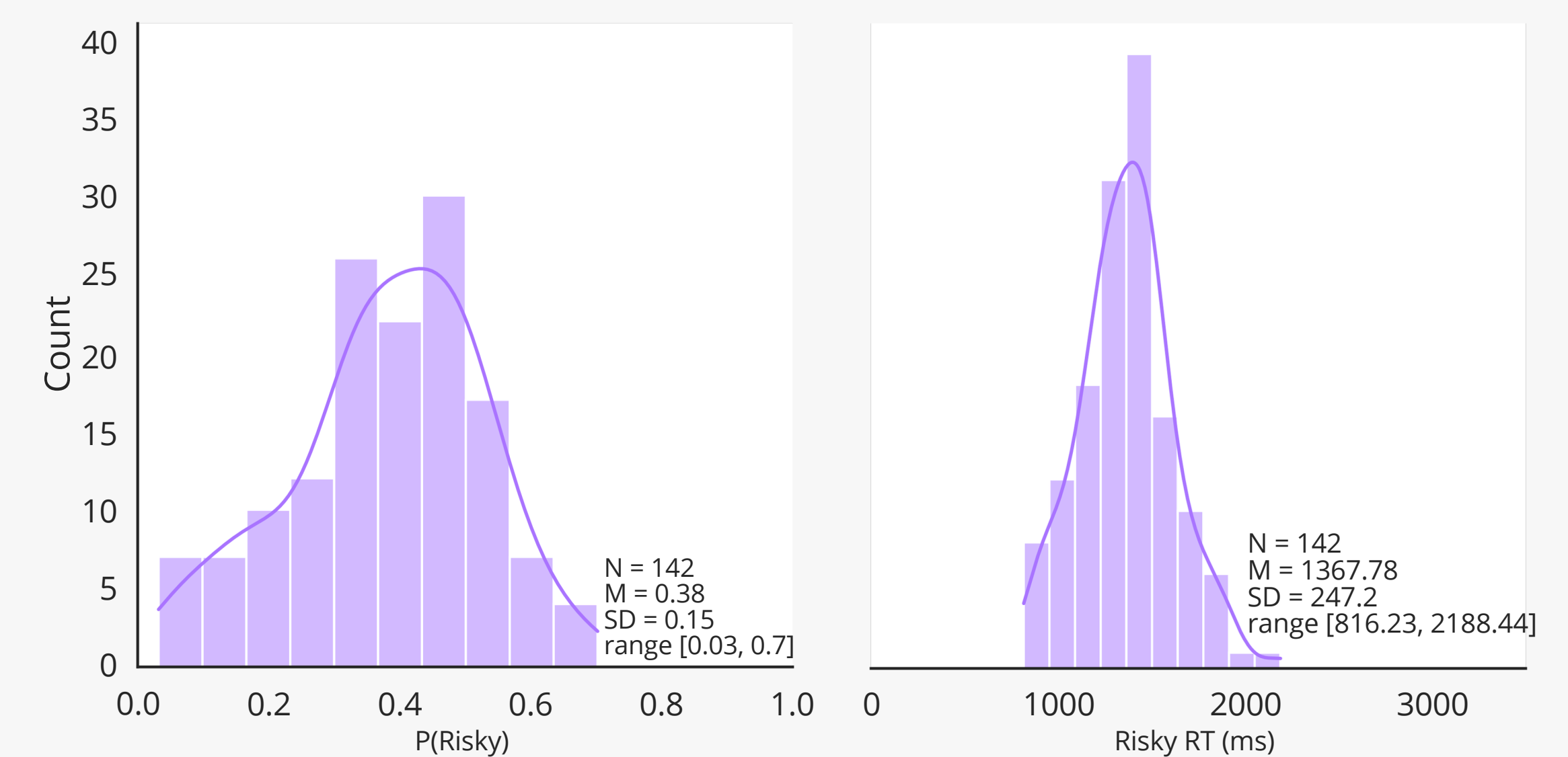
$rt(Risky) \sim UPPS-P \text{ score}$

$p(Risky) \sim UPPS-P \text{ score}$

### RESULTS

Participants chose the risky option 38% of the time

Median RT for risky choices: 1367.78 ms

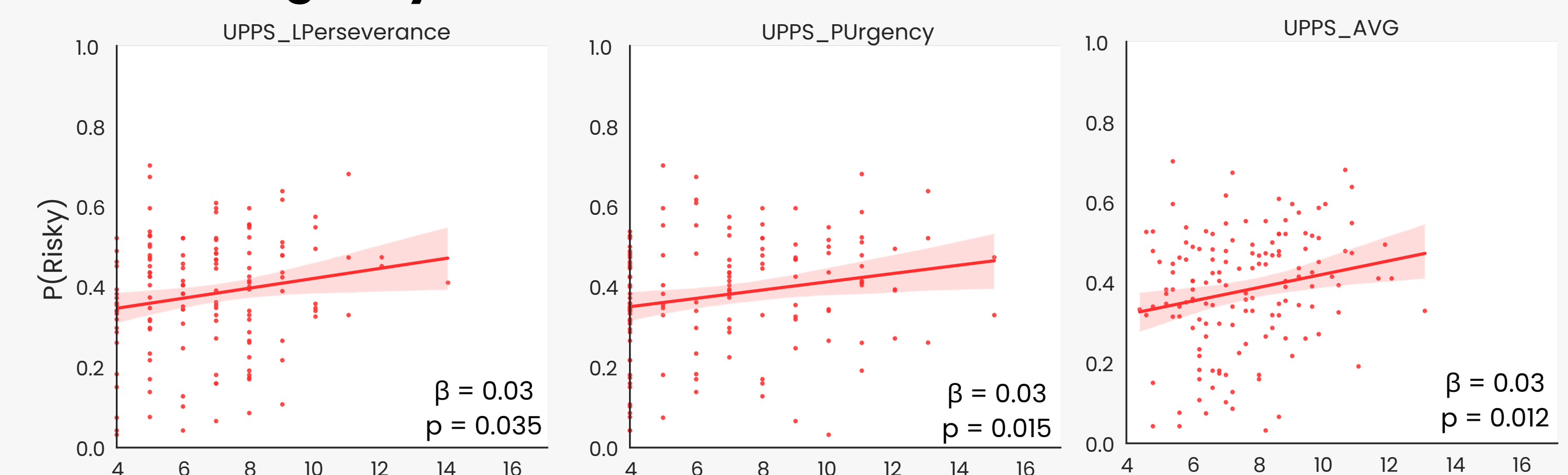


Pure Distribution of scores for behavioral measures of P(Risky) and the Reaction time for making the risky choice Risky RT.

#### Risky Choice Probability:

Significant predictors of risky decision-making:

#### Positive Urgency and Lack of Perseverance

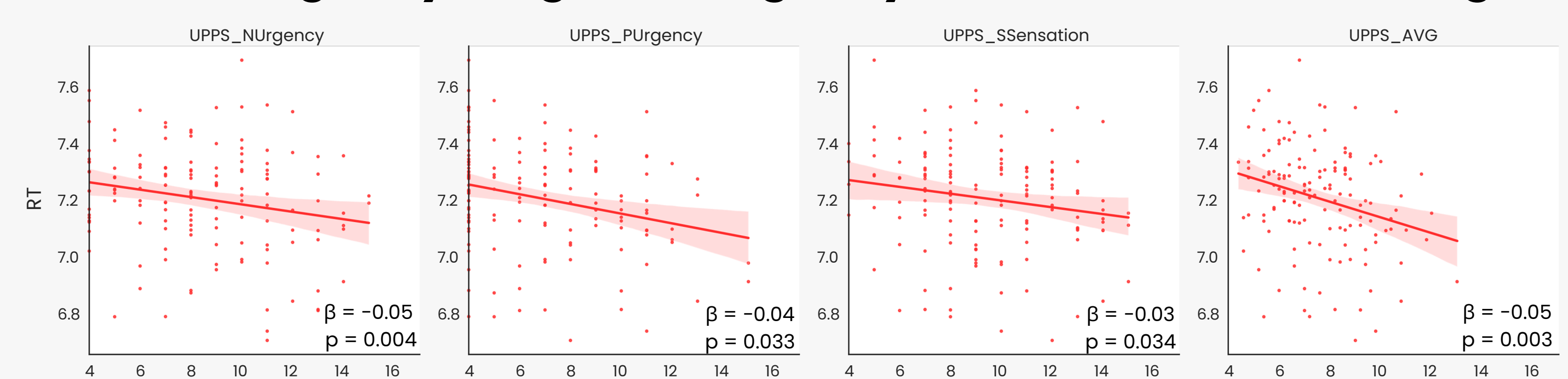


Linear relationships between the total UPPS-P impulsivity score, UPPS-P impulsivity subscale scores and the probability of making a risky choice.

#### Reaction Time (RT) for Risky Choices:

Significantly predicted faster RTs for risky choices:

#### Positive Urgency, Negative Urgency, and Sensation Seeking



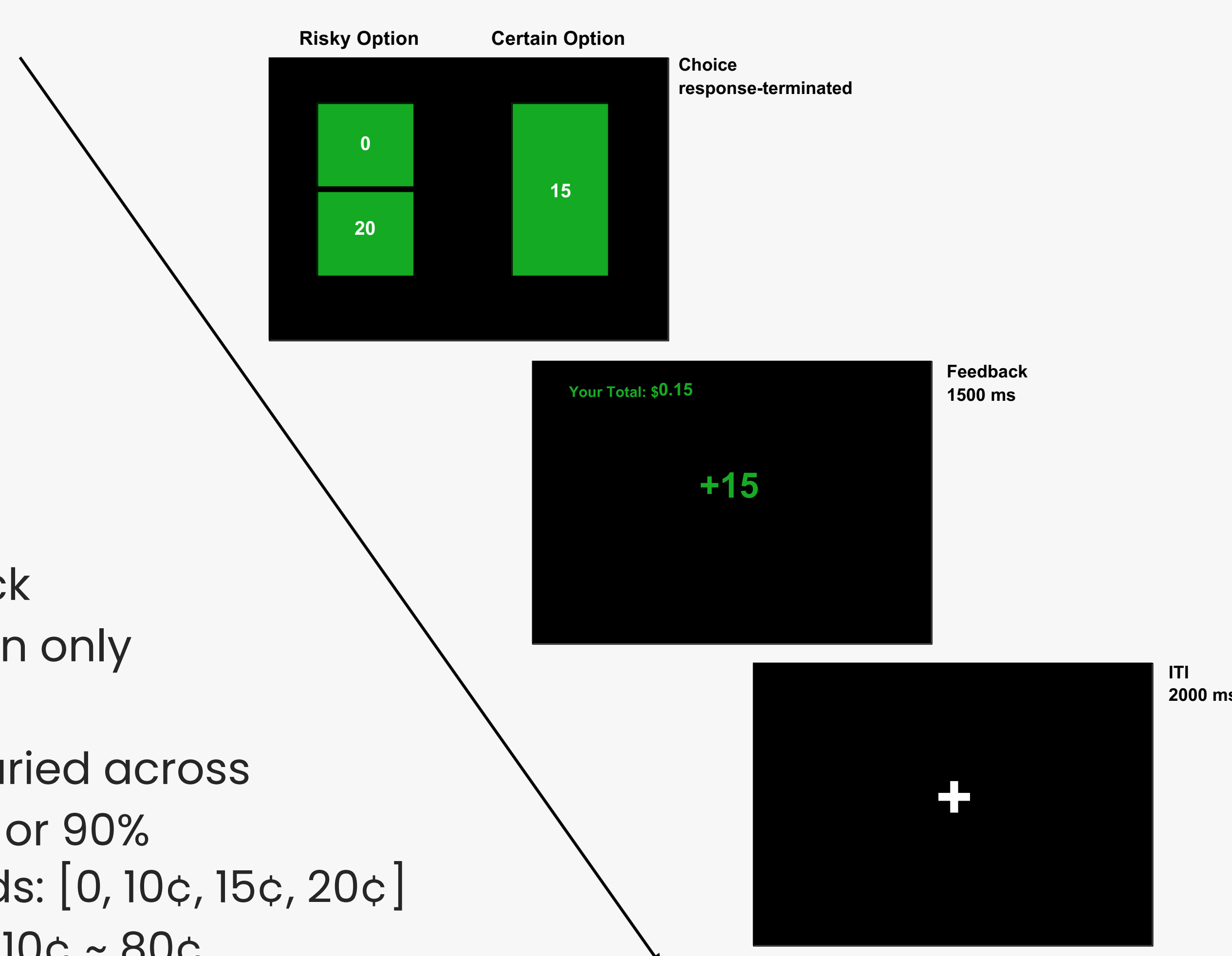
Linear relationships between the total UPPS-P impulsivity score, UPPS-P impulsivity subscale scores and the reaction time (RT) for making the risky choice.

### TASK

Risky choice paradigm [3]:

"Risky" option: probabilistic monetary outcome

"Sure Thing": guaranteed monetary win



- Partial feedback
  - Gains shown only
- 100 trials
- Probabilities varied across trials: 10%, 50%, or 90%
- Certain Rewards: [0, 10¢, 15¢, 20¢]
- Risky Rewards: 10¢ ~ 80¢

### FUTURE RESEARCH

- Emotional impulsivity influences risky decision-making => link to real-time emotional reactivity and measured using fEMG and skin conductance response (**IN PROGRESS at the Otto Lab!**)
- Examine how these findings translate to at-risk populations, such as GAMBLERS
- Identifying at-risk individuals could help develop targeted interventions to mitigate impulsivity-driven risky behavior

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