

Loss Aversion in Gambling Disorder: a Systematic Review

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INTRODUCTION

- **Loss Aversion** is the natural tendency for losses to loom larger than equivalent gains when people evaluate risky choices.
- A loss aversion parameter λ (lambda) can be estimated for any individual by presenting a series of risky gambles.
E.g., “would you accept a 50-50 gamble where you stood to win \$20 or lose \$15?”
- λ is the Gain/Loss ratio at the **Indifference Point**, where individuals switch from accepting to rejecting such gambles.
- How is loss aversion altered in problem gamblers? By one account, problem gamblers may be less averse to losses since they evidently accept risky gambles with potential losses. However, loss chasing may also arise from *increased* loss aversion. These contradictory hypotheses lead us to undertake a literature review on loss aversion in the context of gambling.

LITERATURE REVIEW

Literature Searching Strategy:

- Search engines: PsychInfo, Google scholar, and Pubmed.
- Search keywords: “problem gambling”, “pathological gambling”, “gambling”, “loss aversion.”
- Inclusion Criteria:
 - 1) The participants involved problem gamblers (PG) and a healthy control (HC) group.
 - 2) Studies quantified a loss aversion parameter (λ) through a behavioral economics tasks.

Search Results:

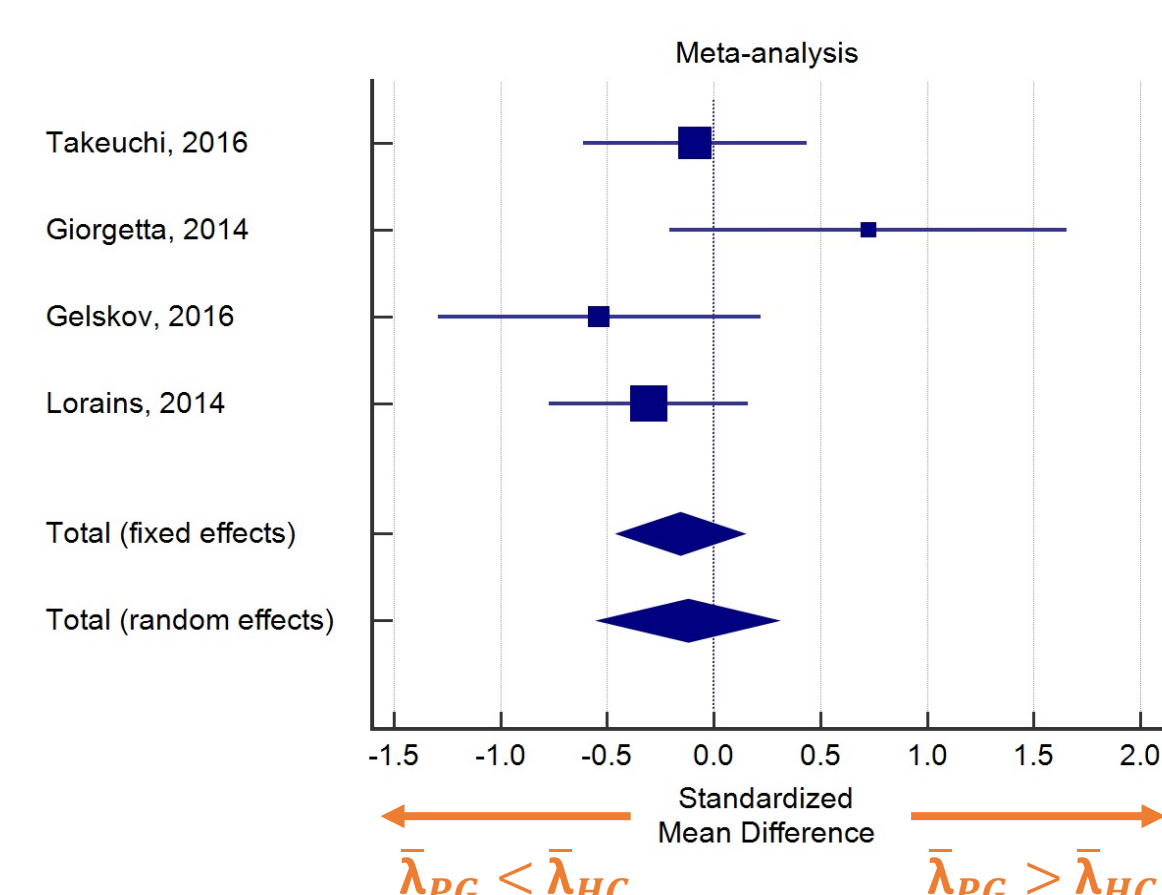


Figure 1. Effect size (Cohen's d) of loss aversion (λ) difference between PG and HC.

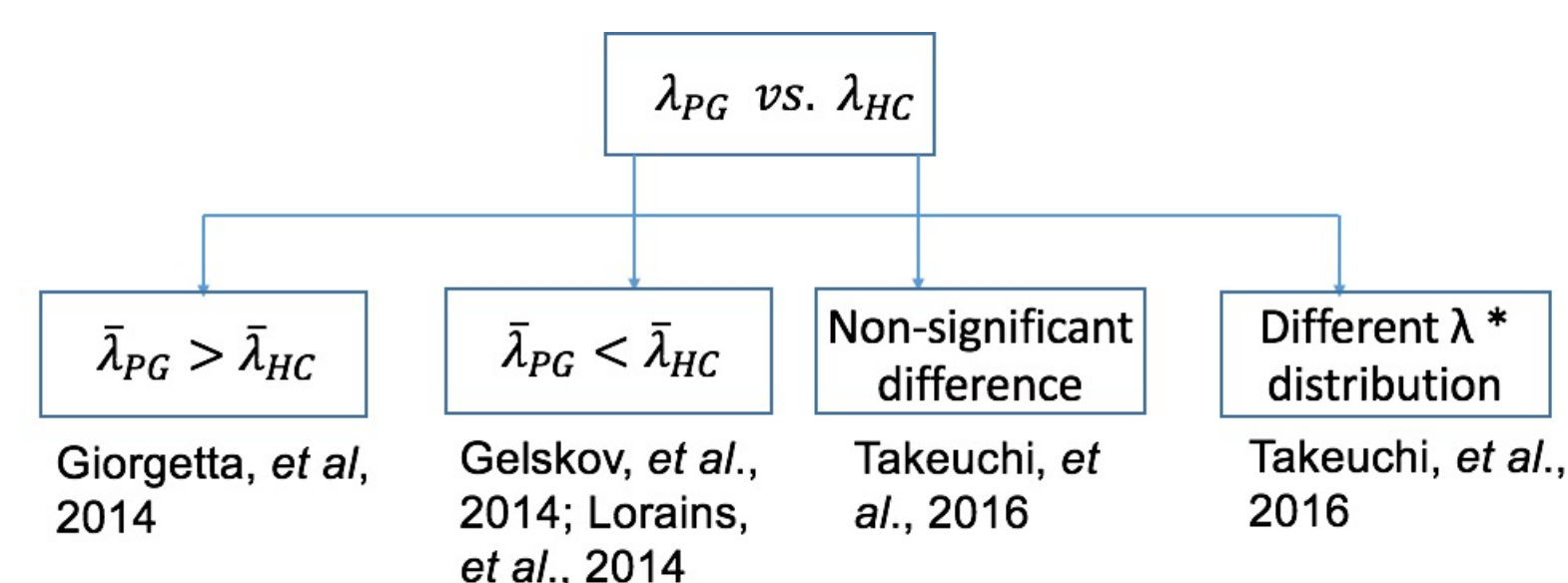
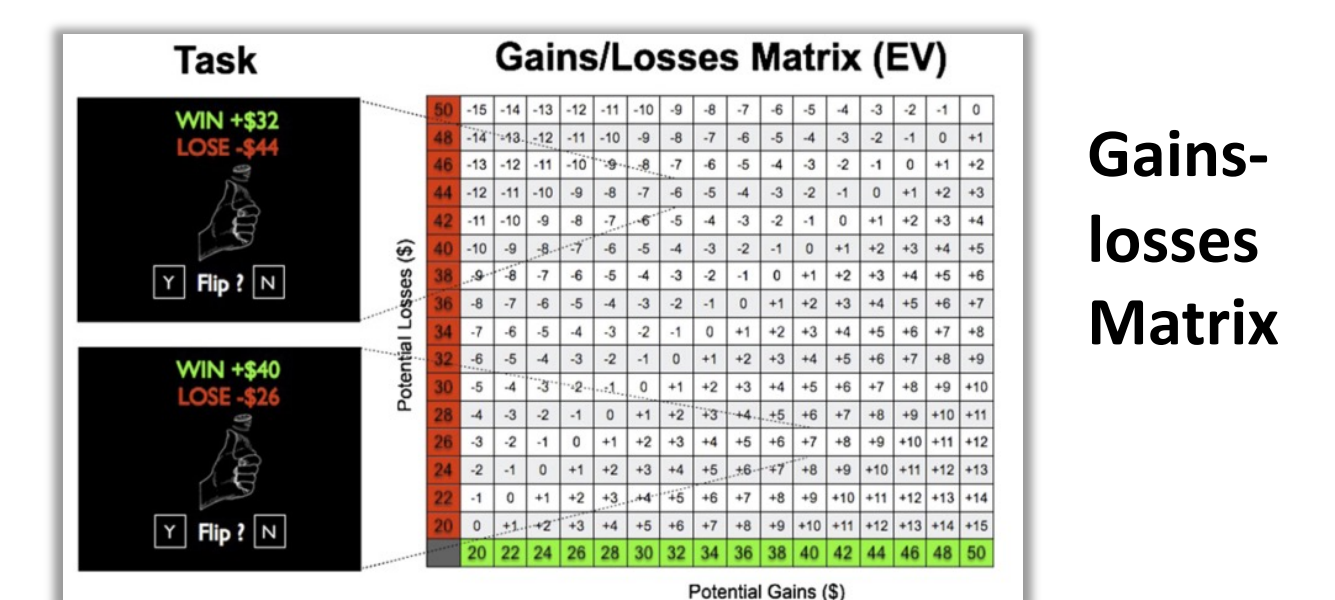
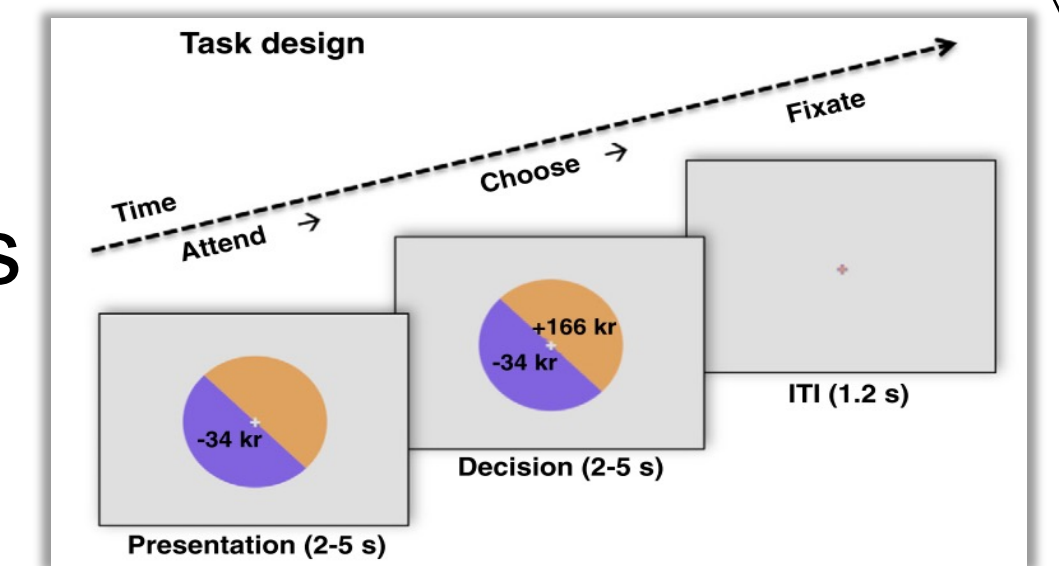


Figure 2. The comparison of loss aversion parameter(λ) between PG and HC in literatures.

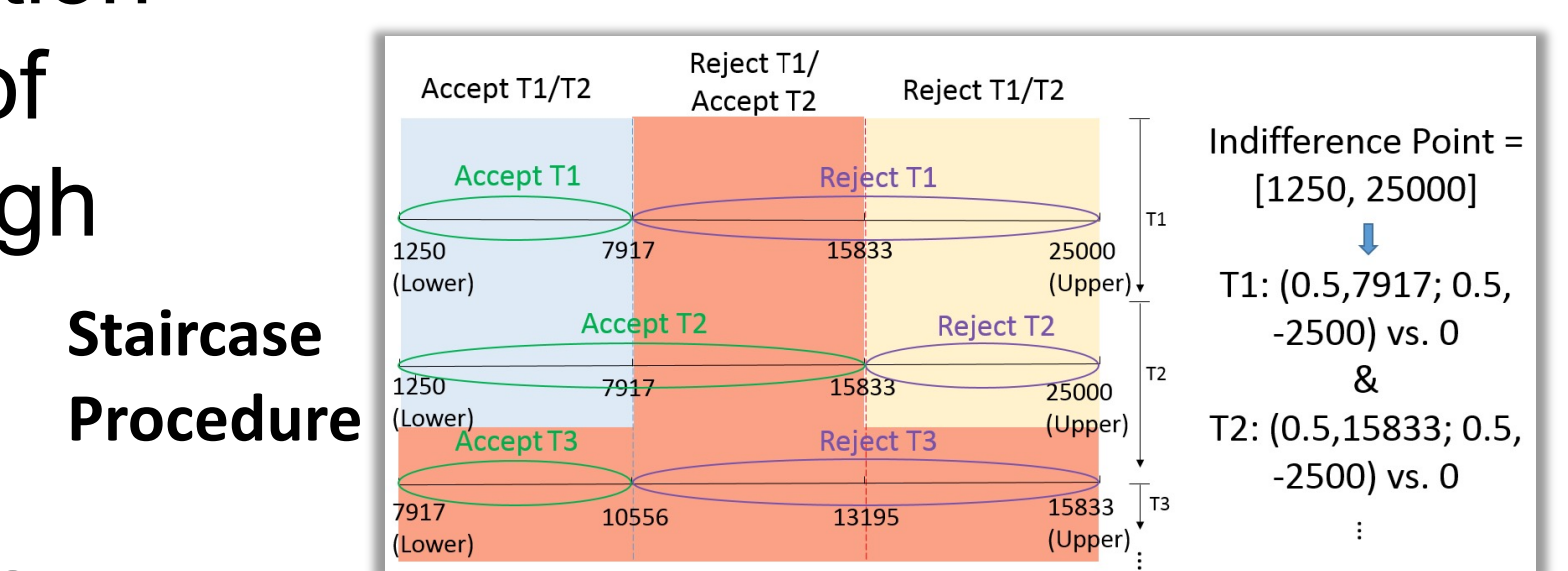
*PG has a bimodal distribution towards extreme λ ; HC has a relatively normal distribution.

KEY METHODS DIFFERENCES IN PAST WORK

- Gelskov *et al.* (2016) observe the largest effect size, with the PG group displayed *reduced* loss aversion. In this study, gambling choices were presented without outcomes, and the gain and loss amounts were presented over successive screens.
- The study by Giorgetta *et al.* (2014) observed increased loss aversion, which further scaled with the length of time in treatment.
- Takeuchi *et al.* (2015) used a staircase procedure to adjust gambles for each participant, based on their previous choices. This enables more precise estimation of the indifference point, across a narrowing series of choices. This study observed *bimodality* in λ , with high and low loss averse subgroups mapping onto the Pathways Model.

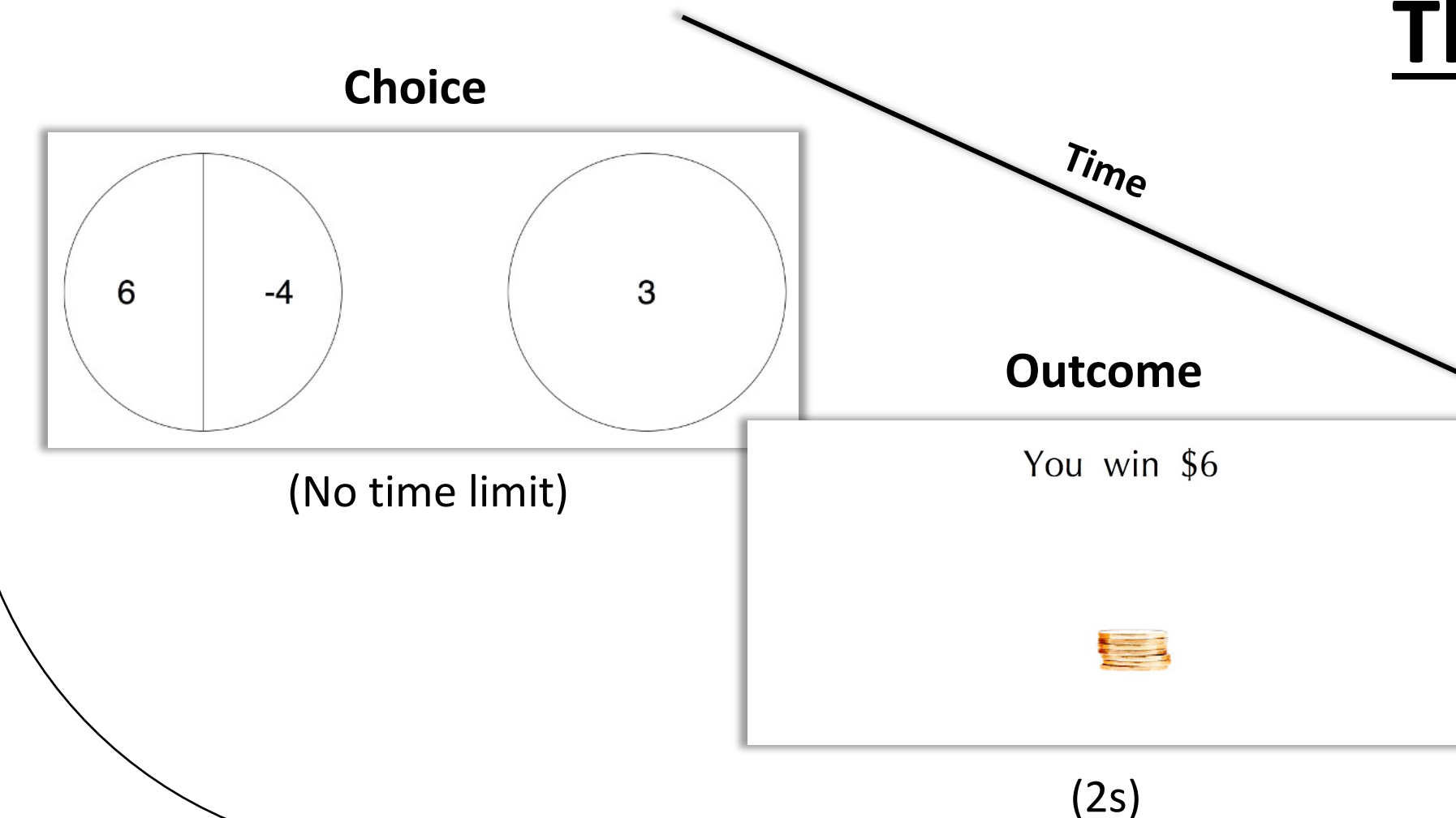


Gains-losses Matrix



Staircase Procedure

The NEW TASK



- Our task adopts the staircase procedure, as well as auditory and visual sensory feedback proportionate to the sizes of gains and losses, in order to maximize the emotional salience of the gain and loss outcomes.

DISCUSSION

- In prior studies, observed differences in loss aversion in PG are inconsistent, with separate studies reporting increased loss aversion, decreased loss aversion, or bimodality.
- This inconsistency likely derives from a number of methodological differences in how the gambles are presented, how gains and losses are reinforced, and how the λ parameter is estimated. Our ongoing work will use an optimized task to characterize loss aversion and its relationship with loss chasing in PG more thoroughly.

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