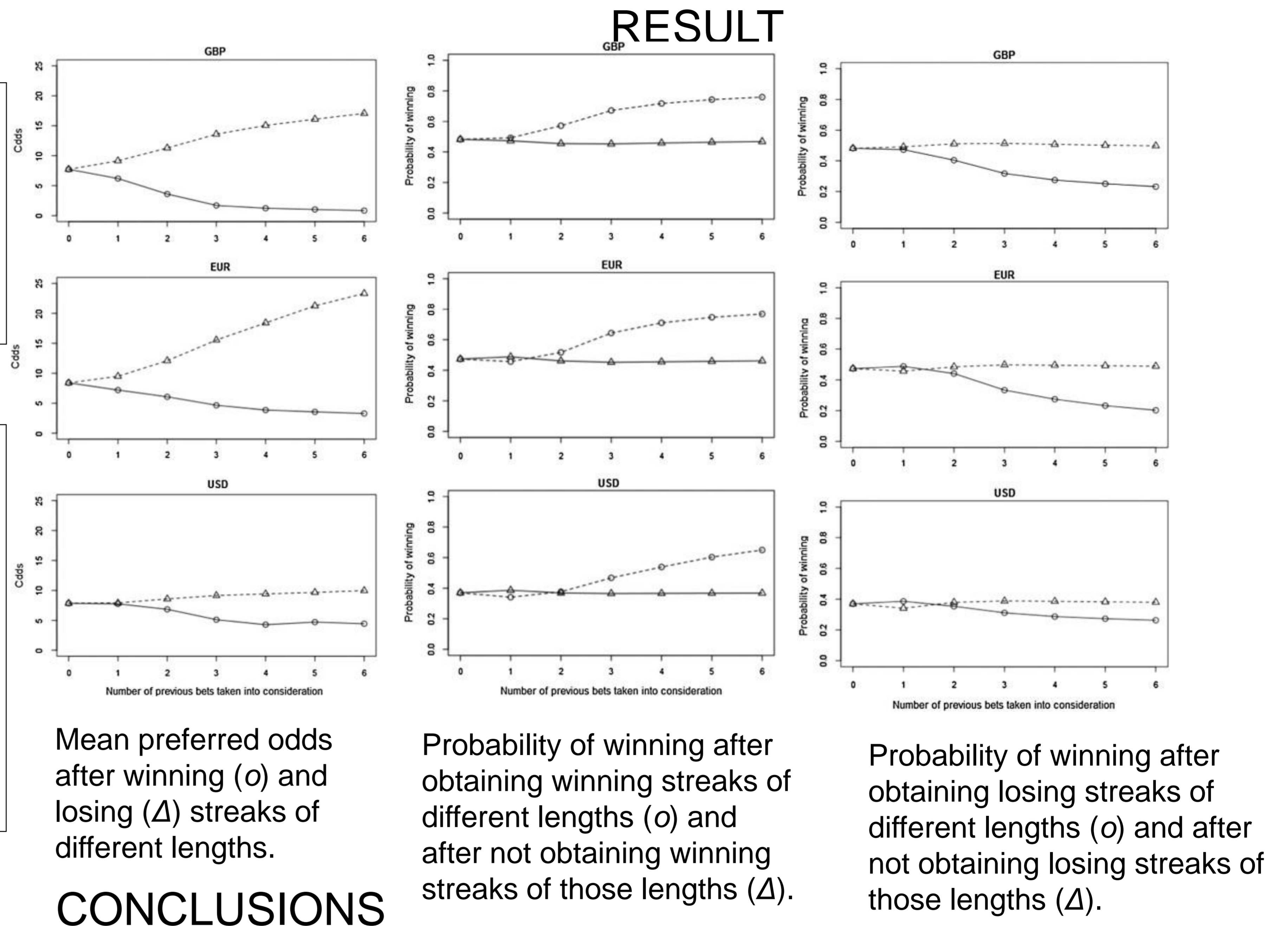


## INTRODUCTION

- 565,915 Sports bets made by 776 online gamblers in 2010 were analysed.
- We discovered the hot hand really exists.
- The gamblers believed the gamblers' fallacy.
- The hot hand is caused by gamblers believing the gamblers' fallacy.

## METHOD

We used a large online gambling database. First, we counted all the sports betting results to see whether winning was more likely after a streak of winning bets or after a streak of losing ones. Second, we examined the record of those gamblers who has long streaks of wins to see whether they had higher returns; this could be a sign of real skill. Third, we used the odds and the stake size to predict the probability of winning.



Mean preferred odds after winning (o) and losing (Δ) streaks of different lengths.

Probability of winning after obtaining winning streaks of different lengths (o) and after not obtaining winning streaks of those lengths (Δ).

Probability of winning after obtaining losing streaks of different lengths (o) and after not obtaining losing streaks of those lengths (Δ).

## CONCLUSIONS

We found evidence for the hot hand but not for the gamblers' fallacy. Gamblers were more likely to win after winning and to lose after losing.

After winning, gamblers selected safer odds. After losing, they selected riskier odds. After winning or losing, they expected the trend to reverse: they believed the gamblers' fallacy. However, by believing in the gamblers' fallacy, people created their own luck. The result is ironic: Winners worried their good luck was not going to continue, so they selected safer odds. By doing so, they became more likely to win. The losers expected the luck to turn, so they took riskier odds. However, this made them even more likely to lose. The gamblers' fallacy created the hot hand.

Xu, J., & Harvey, N. (2014). Carry on winning: the gamblers' fallacy creates hot hand effects in online gambling. *Cognition*, 131(2), 173–80.

Xu, J., & Harvey, N. (2015). Carry on winning: No selection effect. *Cognition*, 139, 171-73.