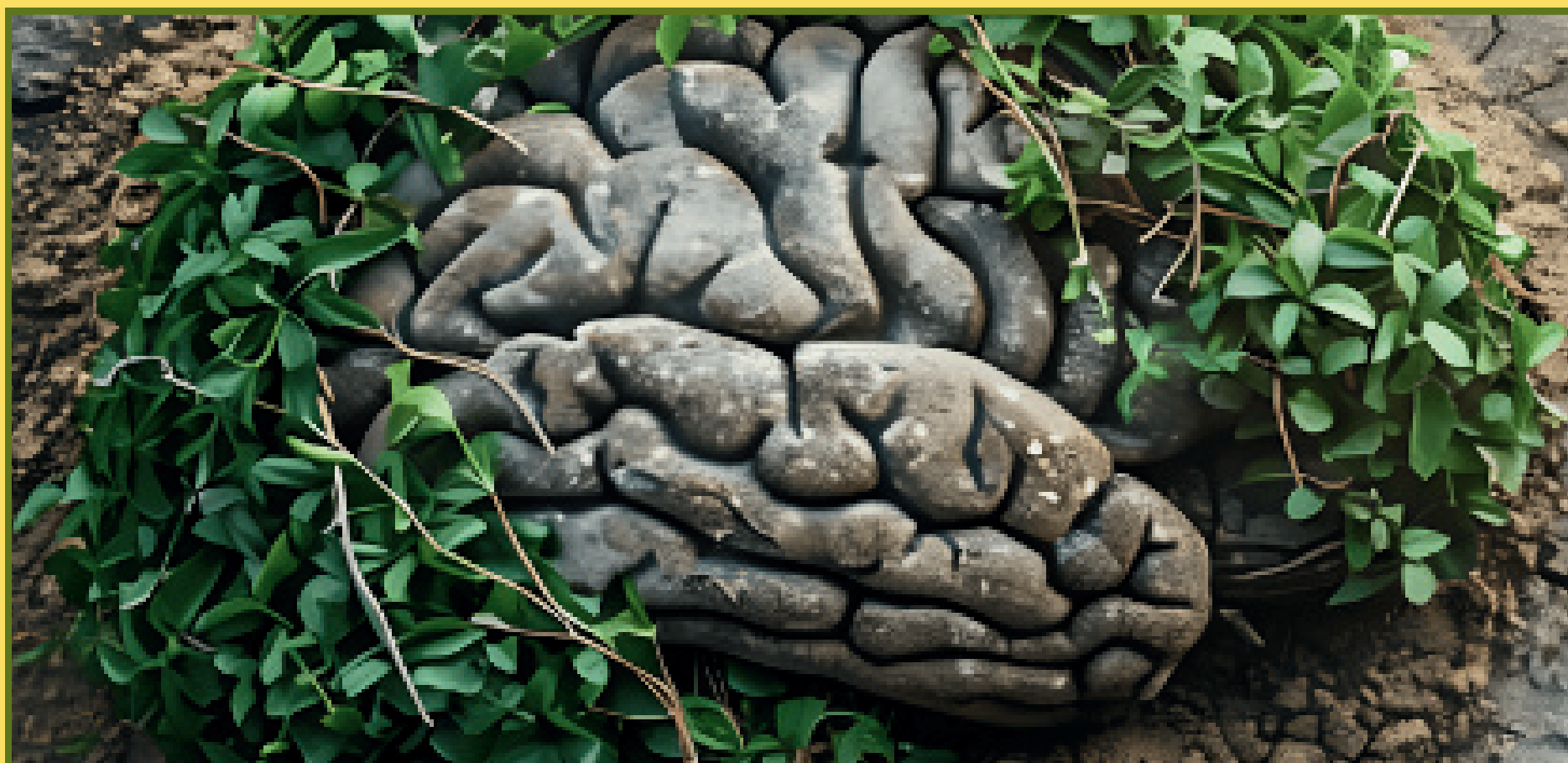


Doing Good Feels Better: Moral Appeals Shape Reward-Related Neural Activity for Pro-Environmental Gains

Ömer Ergün^a, Félice van Nunspeet^a, Naomi Ellemers^a

Background

- Addressing global issues like climate change requires changes in human behavior¹.
- However, changing behavior is difficult to sustain due to psychological and social barriers².
- Positive behavior change therefore requires intrinsic motivation³.
- Since morality is an important driver of behavior, moral appeals can motivate behavior, but prior research shows they may sometimes be ineffective or even backfire⁴.

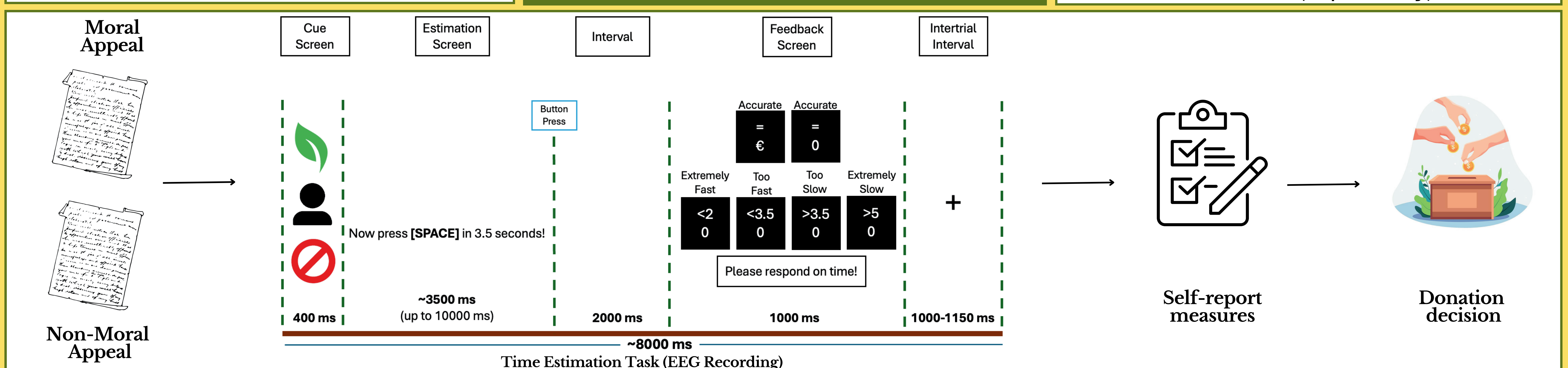


Research Objective

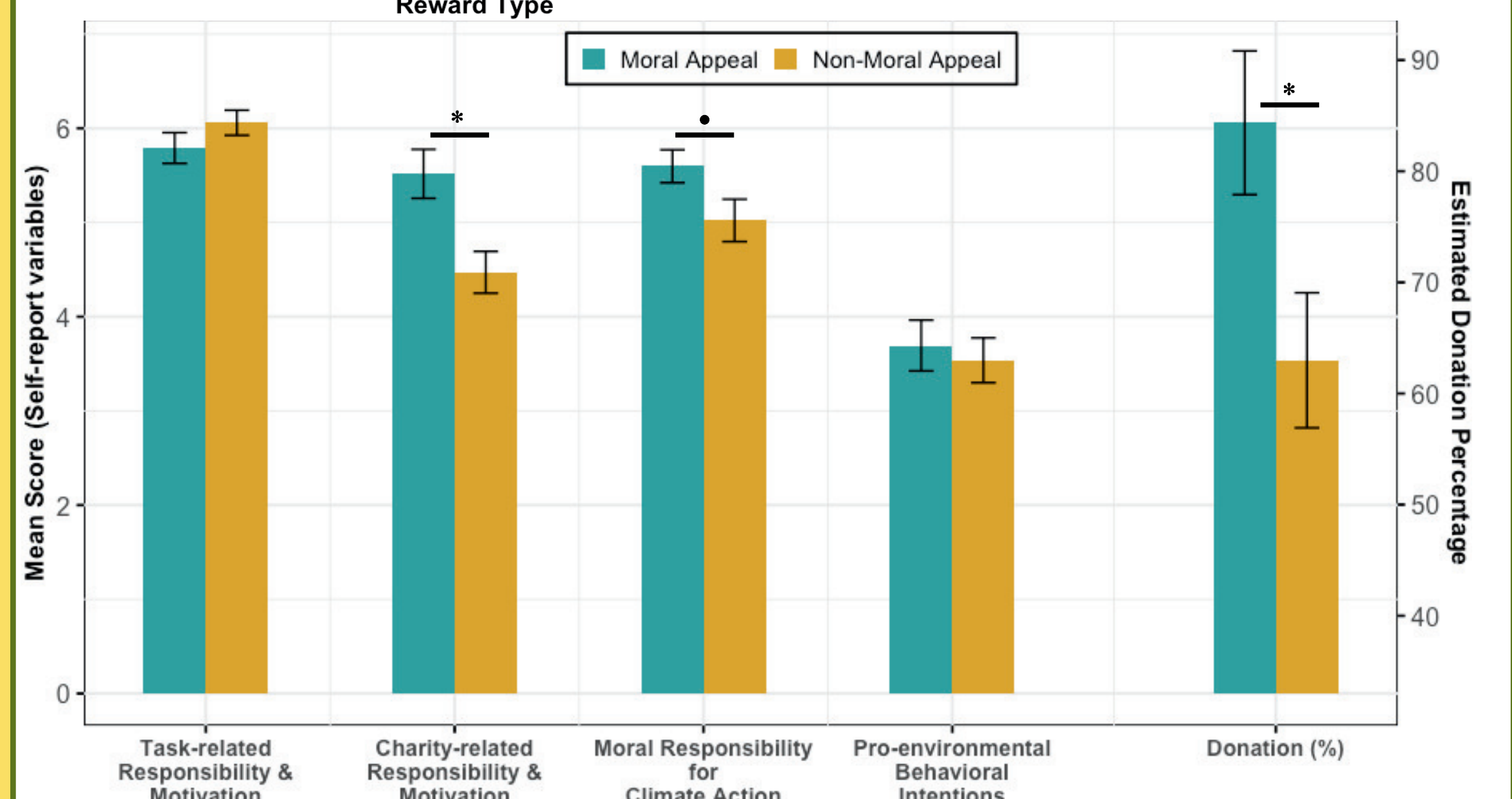
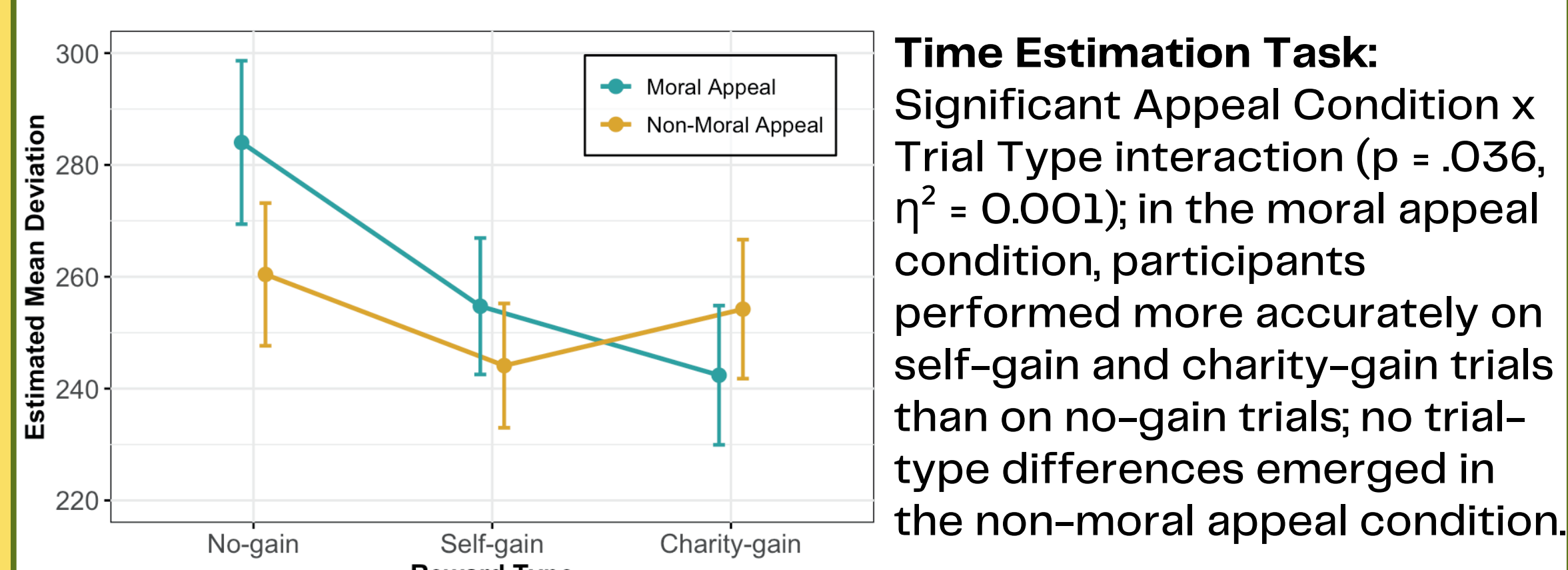
Examining whether and how a moral appeal can enhance people's motivation for pro-environmental gains, by measuring behavioral performance, reward-related brain activity, and self-reported feelings of responsibility

Methodology

- Participants read either a moral appeal (framing climate action as a moral responsibility) or a non-moral appeal.
- Completed a time estimation task under EEG, where accurate responses yielded rewards for themselves (self-gain), for a climate-friendly charity (charity-gain), or no reward (no-gain).
- Afterward, completed four self-report measures and a behavioral donation task.
- EEG analyses focused on reward processing: **SPN & RewP** (confirmatory); **N2, Cue-P3, Feedback-P3 & LPP** (exploratory).



Behavioral & Self-report Results



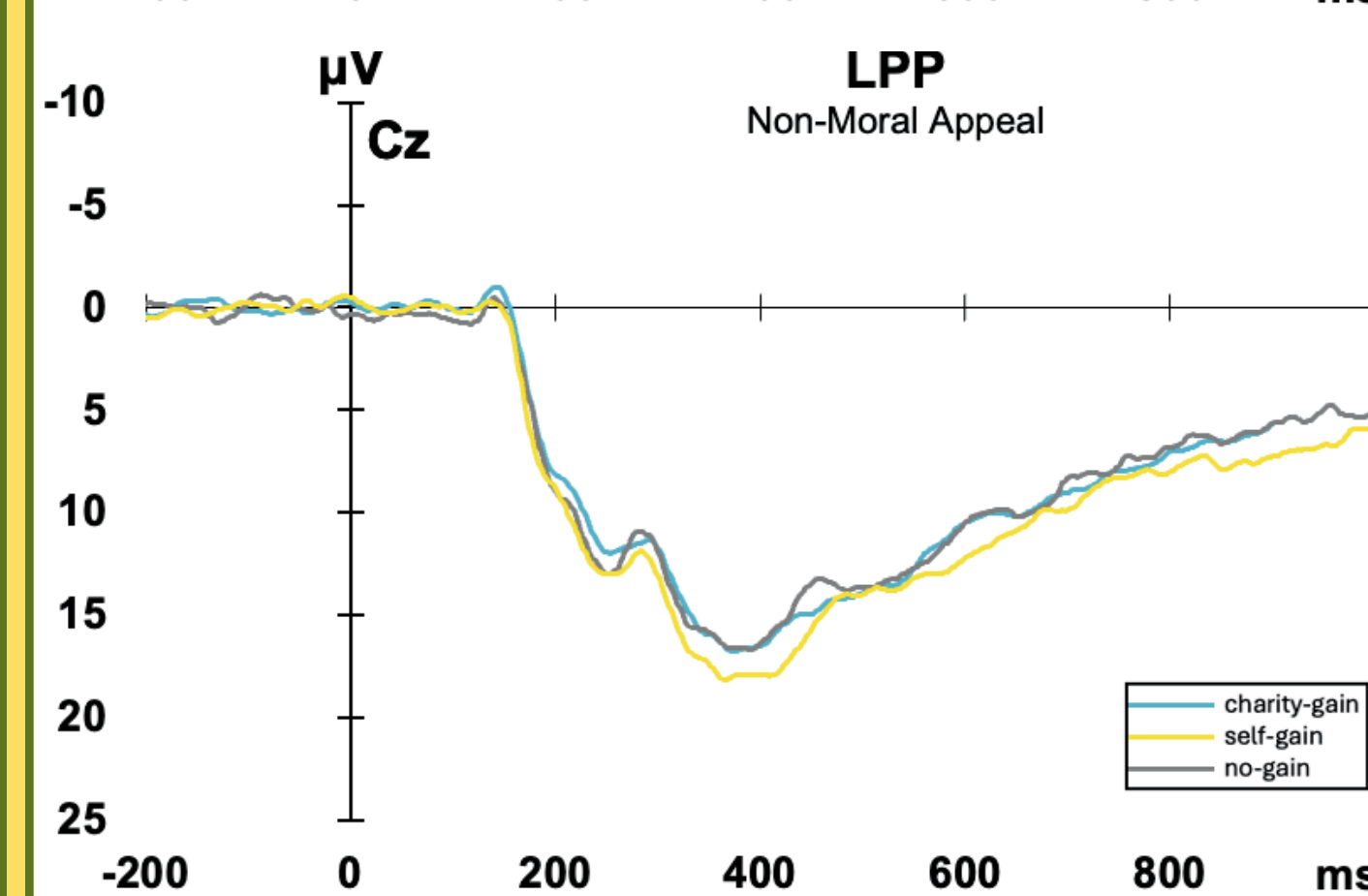
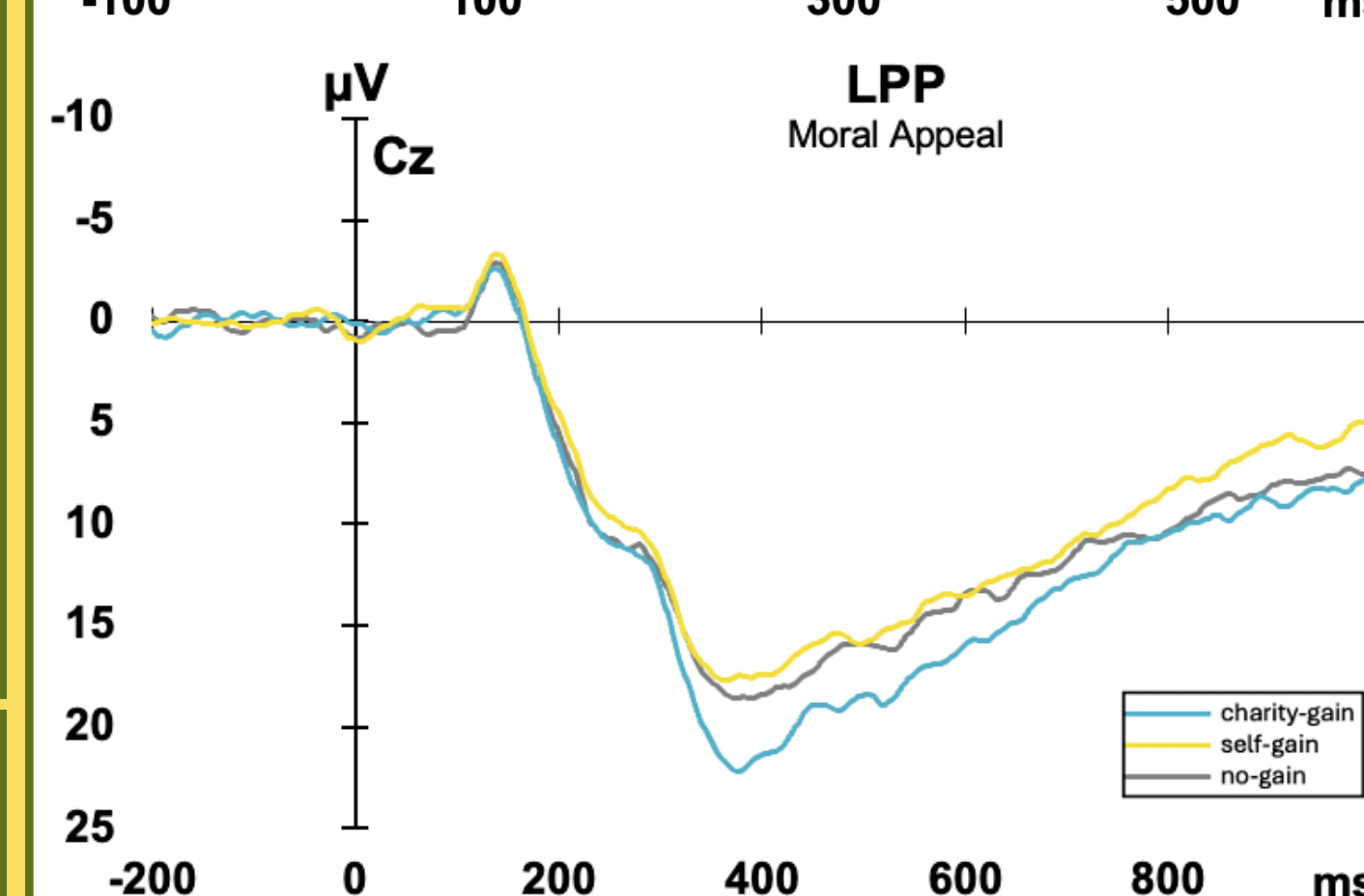
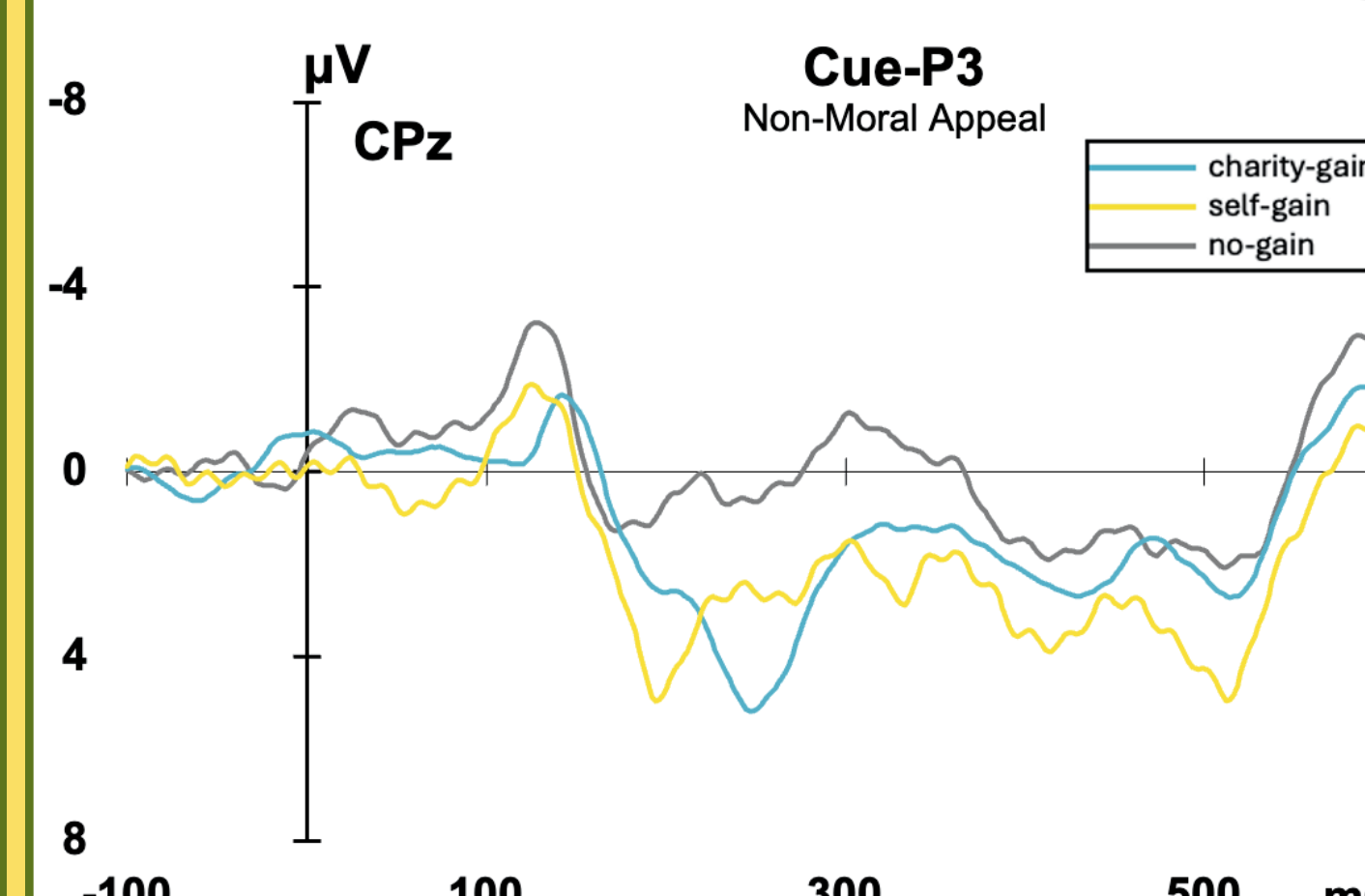
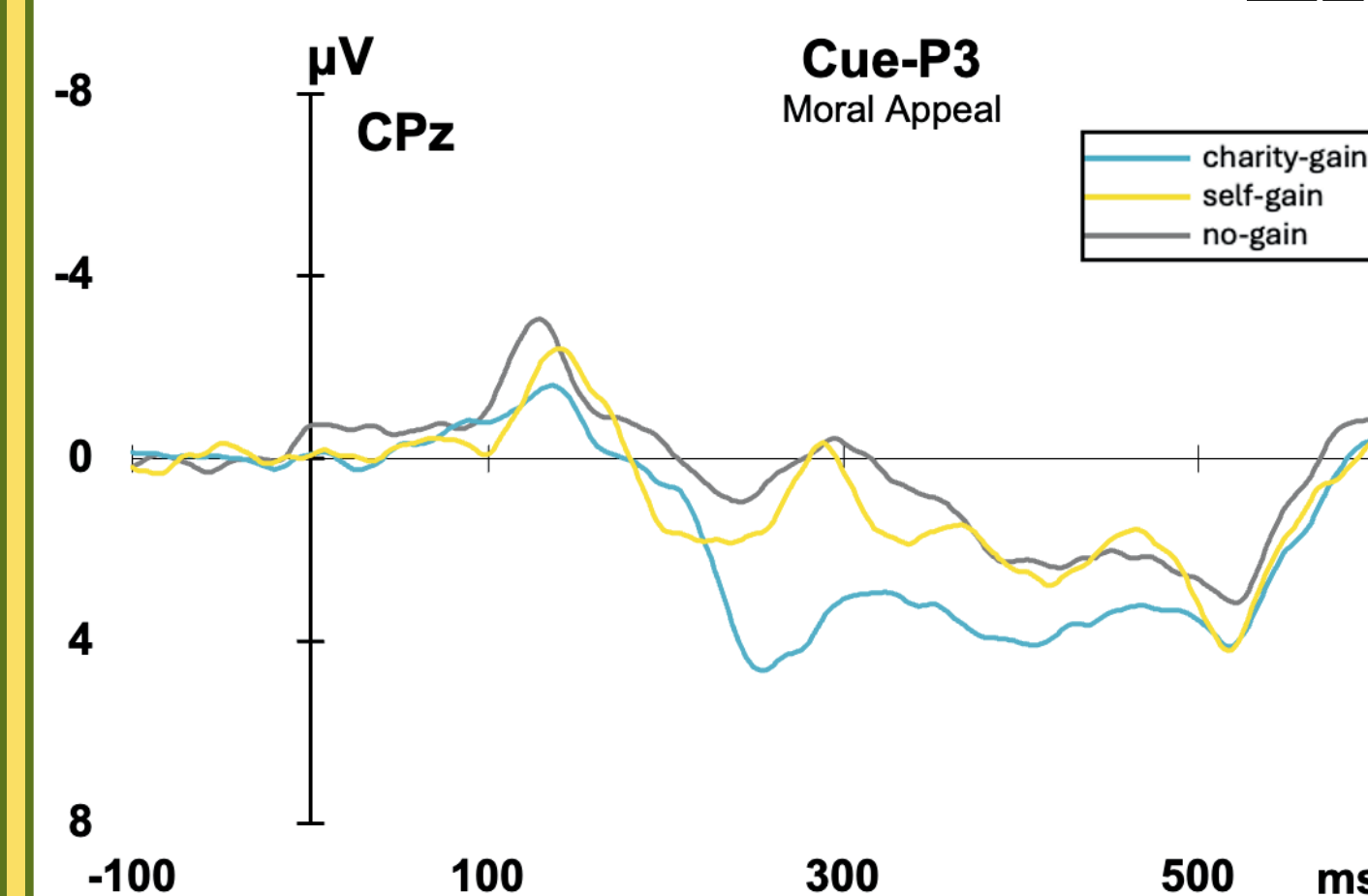
Self-report Measures: Participants in the moral appeal condition reported higher Charity-related Responsibility & Motivation ($p = .003$, $\eta^2 p = .13$) and marginally higher Climate Action ($p = .051$, $\eta^2 p = .06$) than those in the non-moral appeal condition.

Donation: They also donated more of their bonus to a climate-friendly charity ($p = .019$, $\eta^2 p = .10$).

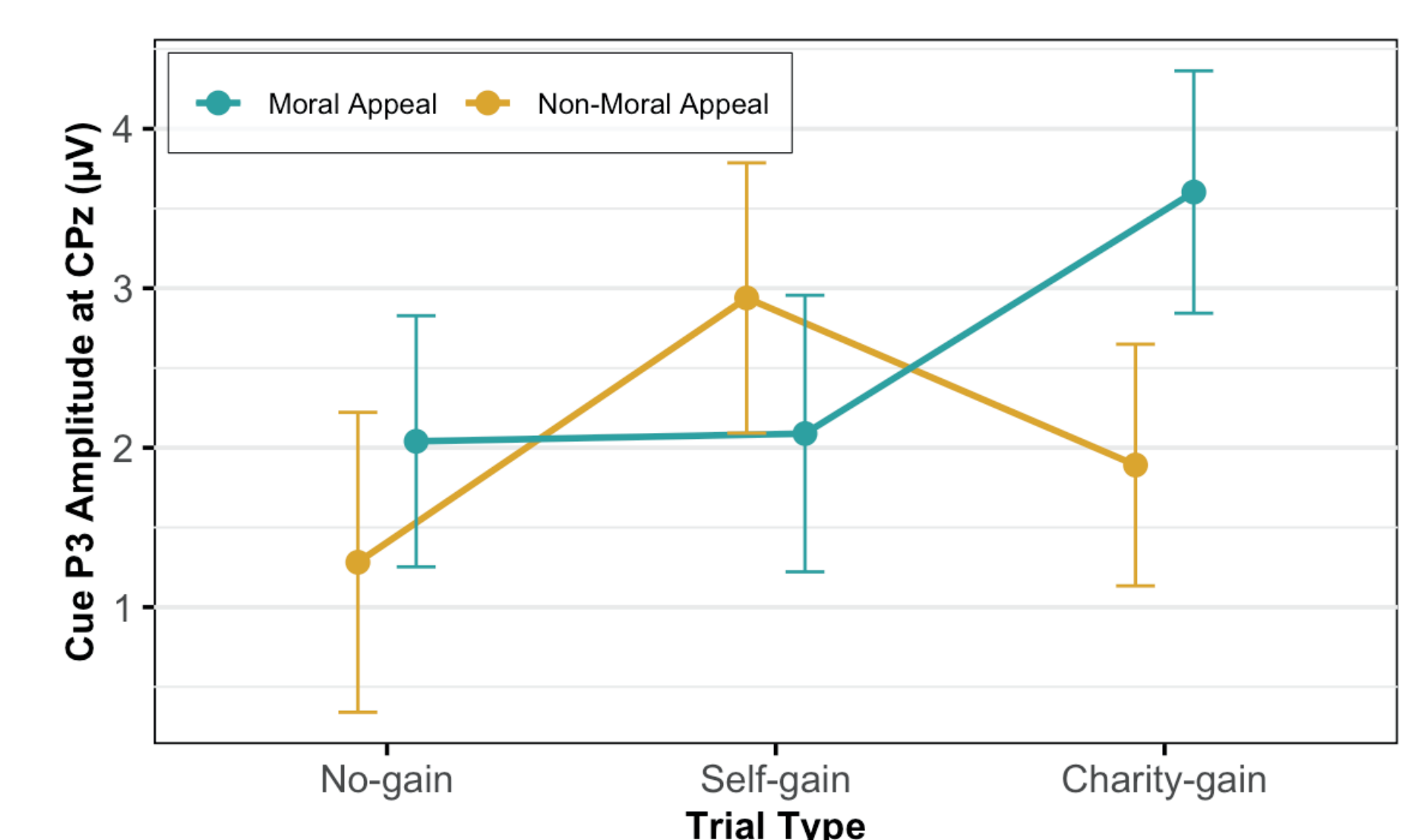
Core Messages

- A moral appeal can affect pro-environmental motivation and behavior, by enhancing self-reported moral responsibility, willingness to donate, and enhanced performance- and reward-motivation for climate goals.
- A moral appeal can increase the perceived reward value of pro-social goals even more than self-relevant goals, which may play a crucial role in driving behavior change.
- A moral appeal can reshape reward processing across multiple stages of motivated attention, modulating reward-anticipation, performance evaluation, and reward evaluation.

ERP Results

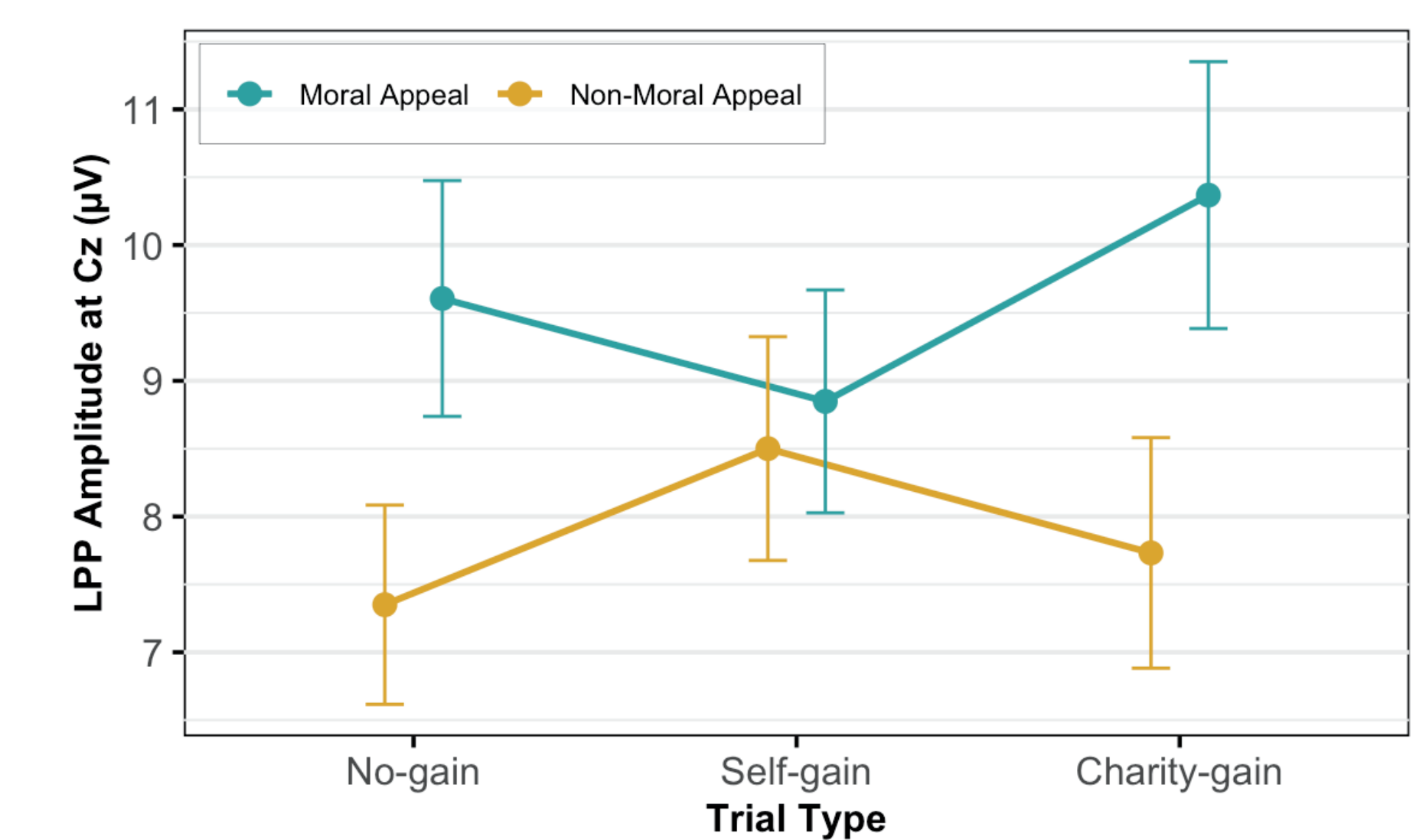


SPN & RewP: Confirmatory analyses showed no effects of Appeal Condition or Trial Type on SPN or RewP.



Cue-P3: Significant Appeal Condition x Trial Type interaction ($p = .029$, $\eta^2 p = .11$); a larger Cue-P3 on charity-gain trials than other trials only in the moral appeal condition.

Feedback-P3: The same pattern as in Cue-P3 was also observed for Feedback-P3 ($p = .003$, $\eta^2 p = .21$).



LPP: Significant Appeal Condition x Trial Type ($p = .007$, $\eta^2 p = .27$) interaction; in the moral-appeal condition, charity-gain trials elicited larger LPP than self-gain trials, while in the non-moral appeal condition, there was larger LPP on self-gain trials than no-gain trials.

¹ Doell et al. (2023), <https://doi.org/10.1038/s41558-023-01857-4>
² Gifford (2011), <https://doi.org/10.1037/a0023566>
³ Ryan & Deci (2000), <https://doi.org/10.1006/ceps.1999.1020>
⁴ van Nunspeet & Ellemers (2024), <https://doi.org/10.1177/13684302231159577>