Does interpretation of actions as either avoid or inhibit influence choice behaviour for candy?

*A recommendation by **Andrew Jones** based on peer reviews by **Katrijn Houben** and **Alexander MacLellan*** ⓘ *of the STAGE 2 REPORT:*

Cite this recommendation as:
Jones, A. (2025) Does interpretation of actions as either avoid or inhibit influence choice behaviour for candy?. *Peer Community in Registered Reports*, 100951. 10.24072/pci.rr.100951

Experimental research demonstrates that executing or inhibiting motor responses (or approaching / avoiding) towards a stimulus can alter the valuation of the stimulus (Yang et al., 2022). There are competing theories as to the proposed mechanisms of value change, such as increased response conflict or prediction errors (Houben & Aulbach, 2023). However, research has mostly examined response execution/inhibition and approach/avoidance in isolation and the few studies that have examined these together have focused on stimulus evaluation as an outcome. In the current study Chen et al. (2025) set out to examine how action interpretations (e.g. go vs approach) can impact individuals food-choices. This is important for cognitive bias modification approaches which aim to manipulate these actions to promote behaviour change (Iannazzo et al., 2024; Veling et al., 2021), but also theoretical accounts which suggest certain motor-responses acquire valence. Here there are two groups randomised to receive instructions to either go/no-go or approach/avoid images of candy in novel training task (Chen et al., 2019). The results of the experiment suggested that despite both groups making the same responses (pressing a space bar vs not), the framing of the response as go vs approach and no-go vs avoidance influenced subsequent food-choice (i.e. responses framed as approach increased the probability of choosing approach items over avoidance items, but not go items over no-go items). As the authors state, these findings cast doubt on theoretical models which suggest there are 'hardwired' links between specific go/approach responses and appetitive systems or specific no-go/avoidance responses and aversive systems. They also suggest these responses aren't valenced, but acquire valence through interpretation of the action. These findings can also inform future studies into cognitive bias modification. The Stage 2

manuscript was evaluated over two rounds of in-depth review by two reviewers with expertise in the relevant area, who also assessed the Stage 1 manuscript. Based on the authors' careful responses and revisions, the revised manuscript was judged to meet the Stage 2 criteria and was awarded a positive recommendation. **URL to the preregistered Stage 1 protocol:** https://osf.io/bn5xa **Level of bias control achieved:** Level 6. *No part of the data or evidence that was used to answer the research question was generated until after IPA.* **List of eligible PCI RR-friendly journals:**

- Addiction Research & Theory

- Advances in Cognitive Psychology

- Collabra: Psychology

- Experimental Psychology

- Journal of Cognition

- Peer Community Journal

- PeerJ

- Psychology of Consciousness: Theory, Research, and Practice

- Royal Society Open Science

- Studia Psychologica

- Swiss Psychology Open

References:

1. Chen, Z., Van Dessel, P., Serverius, J., Zhu, D. & Figner, B. (2025). Action interpretation determines the effects of go/no-go and approach/avoidance actions on food choice. Acceptance of Version 2 by Peer Community in Registered Reports. https://doi.org/10.31234/osf.io/6xhw4_v2

2. Chen, Z., & Van Dessel, P. (2024). Action Interpretation Determines the Effects of Go/No-Go and Approach/Avoidance Actions on Stimulus Evaluation. Open Mind, 8, 898–923. https://doi.org/10.1162/opmi_a_00151

3. Houben, K. and Aulbach, M. (2023). Is there a difference between stopping and avoiding? A review of the mechanisms underlying Go/No-Go and Approach-Avoidance training for food choice. Current Opinion in Behavioral Sciences, 49, 101245. https://doi.org/10.1016/j.cobeha.2022.101245

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5. Veling, H., Verpaalen, I. A. M., Liu, H., Mosannenzadeh, F., Becker, D., & Holland, R. W. (2021). How can food choice best be trained? Approach-avoidance versus go/no-go training. Appetite, 163, 105226. https://doi.org/10.1016/j.appet.2021.105226

6. Yang, Y., Qi, L., Morys, F., Wu, Q. & Chen, H. (2022). Food-Specific Inhibition Training for Food Devaluation: A Meta-Analysis. Nutrients, 14, 1363. https://doi.org/10.3390/nu14071363

Reviews

Evaluation round #1

Authors' reply, 28 January 2025

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Decision by Andrew Jones, posted 17 January 2025, validated 17 January 2025

Minor Revision

Hi,

Both reviewers are generally happy with the stage 2, however, before acceptance there are just some minor points from the reviewer relating to presenting of all analyses which I wonder if you could clarify.

Andy

Reviewed by Katrijn Houben, 10 December 2024

I commend the authors for their scientific rigor and the clarity with which they have conducted and presented their research. The Stage 1 manuscript provided a well-structured and thorough introduction to the study, with clearly articulated aims and a clear description of the study methods and analyses. The Stage 2 manuscript now presents the results and discussion with the same level of detail and transparency. The results are clearly described, align well with the preregistered analysis plan, and are complemented by exploratory analyses that, for the most part, are accompanied by a clear and thoughtful rationale for their inclusion. I was particularly interested to see how the findings addressed the study aims and added to the understanding of the research question. However, I have a few questions and suggestions regarding the exploratory analyses that I believe could further enhance the clarity and impact of the manuscript:

In the section 'exploratory analyses' p. 26-27, the authors describe additional analyses that were performed on participants' performance in the training, which were not preregistered. However, the results section also includes other non-preregistered analyses such as those on the memory tasks and post-training ratings on p.35 under 'Further exploratory analyses (not pre-registered)'. For clarity and transparency, it would be helpful if the authors would include a description of all conducted non-preregistered exploratory analyses within in the section 'exploratory analyses' p. 26-27.

In addition, memory tasks were included to test memory for the stimulus-response contingencies during training. The authors also note that these tasks were included as previous work has shown that memory of stimulus-response contingencies correlated with training effects. However, no such tests are mentioned in the paper in the section 'Further exploratory analyses (not pre-registered)' p. 35. It is only indicated that 'the approach/avoidance group remembered the approach vs. avoidance conditions of items better than the go/no-go group, whereas the go/no-go group remembered the go vs. no-go conditions of items better than the approach/avoidance group.' While informative, the actual rationale for including these memory tasks seemingly was to test whether contingency awareness correlated with training effects, which is currently not directly tested.

Finally, the discussion is well-balanced, offering a clear and concise summary of the study's findings while effectively placing them within the context of prior research. The authors thoughtfully discuss their results

in light of relevant theoretical frameworks, providing valuable insights into the broader implications of their findings. The authors also pinpoint the study's limitations along with clear suggestion for further research on this topic.

Reviewed by Alexander MacLellan [iD], 25 December 2024

The manuscript submitted was an interesting and enjoyable read, with a well-defined research question, procedure, and appropriate analysis plan matching what was submitted at Stage 1. Below are my assessments against the Stage 2 criteria, and I would recommend this manuscript is accepted as a Stage 2 Registered Report.

2A. Whether the data are able to test the authors' proposed hypotheses (or answer the proposed research question) by passing the approved outcome-neutral criteria, such as absence of floor and ceiling effects or success of positive controls or other quality checks.
This criteria has been met, with pre-registered sample sizes achieved after exclusions.

2B. Whether the introduction, rationale and stated hypotheses (where applicable) are the same as the approved Stage 1 submission.
This criterion has been met.

2C. Whether the authors adhered precisely to the registered study procedures.
This criterion has been met, with the authors providing reasonable clarifications to pre-registered analyses. In one place they deviated from their registered analysis (removing random slopes from Bayesian ANOVAs), though this was justified.

2D. Where applicable, whether any unregistered exploratory analyses are justified, methodologically sound, and informative.
This criterion has been met, with unregistered analyses clearly labelled, and the authors have not relied on exploratory analyses when drawing their conclusions.

2E. Whether the authors' conclusions are justified given the evidence.
The authors have made sound conclusions that are justified from the procedure and results achieved.

Alexander MacLellan