**Reviewer’s report**

**Title:** Toward a new computer-based and easy-to-use tool for the objective measurement of hedonic and motivational states in humans: A pilot study

**Version:** 1  
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**Reviewer:** Jean Liu

**Reviewer’s report:**

Reviewer’s Report

Review of ‘Toward a new computer-based and easy-to-use tool for the objective measurement of hedonic and motivational states in humans: A pilot study’

**General**

In this paper, the authors propose a computer-based assessment to measure hedonic and motivational states. As a proof of concept, they show that the assay is sensitive to changes in satiety.

**Major Compulsory Revisions**

This study was motivated by a clear and important goal; the identification of such an assay will likely prove useful in clinical research. Additionally, the authors’ application of psychophysical methods is novel and allows precision in measurement.

(1) However, my primary concern is that it is unclear what exactly the computer task measures, and how this can be said to be an assay of hedonic and motivational states. The metrics (judgment of image size and presentation duration) are shown to be altered by satiety state, but it is not intuitive what this result means exactly. For example, do these satiety-related effects arise because attentional processes are altered (as in the dot-probe tasks that have been shown to change as a function of satiety state)? Further, do the authors’ metrics relate to traditional indicators of hedonic and motivational states, such as liking ratings or actual amount of food consumed? I suggest the authors conduct an additional validation experiment - or at the very least elaborate on this within the manuscript. Additionally, this manuscript will benefit from a comparison of the authors’ tasks to other computer-based tasks that have been shown to be modulated by satiety state (e.g., the dot probe task, reinforcement tasks, food selection or shopping tasks).

(2) A second primary concern is that – as the authors highlight in their discussion of study limitations – the pattern of results they observed do not converge. For example, in Task A, the PSE results do not correspond to those of the PSD. Tasks A and B are also not altered by satiety in the same direction. As such, the result summary (Paragraph 2 of Discussion) does not represent the overall pattern of the data. The complexity of the results should be discussed from the
outset, rather than at the end of the Discussion – perhaps by an acknowledgment that not all metrics show the expected changes following satiety, and a proposal for which metrics should be used moving forward.

Minor Essential Revisions

(3) In the introduction, the authors cite major depression as an example of a reward-related pathology. This is not intuitive; addictions might be a more appropriate examplar.

(4) In the methods section, the description of the devalued images would benefit from elaboration. For example, why were devalued images introduced (as opposed to a direct comparison between the food items and the control geometric figures)?

(5) In either the methods or results sections, please explain why some participants were dropped (30 enrolled vs. 24 for Task A and 27 for Task B).

(6) In the discussion, the limitations and conclusion paragraphs need to be checked for grammar and spelling (e.g., ‘Emotionnally [sic] salient’, ‘Loose [sic] its accuracy’).

Discretionary Revisions

(7) The authors’ discussion of neuroimaging findings involves a fair amount of reverse inferences. The authors may consider rephrasing these.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.