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: Mary Chong

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This paper presents interesting results and introduces a novel methodology to measuring the valuation of food in the fasting and satiety states. However, the hypotheses of the study need to be defined and better linked to the methodology, which requires further clarity. In addition, a number of domain-specific jargon is used throughout the article, which makes interpretation and understanding difficult for the less informed readers.

Major revisions

1. In the abstract, ‘possibly helping further explore biological substrates and estimate the clinical efficacy of therapeutic responses….’ does not appear to be related to the results and is too far-stretched to be mentioned here.

2. In background

a) Para 1: ‘Reward-related pathologies’ is not a commonly used term. It is not uncertain if this is an established term. If to be used, it has to be clearly defined to the reader.

b) Para 1: ‘Eating-related disorder’ gives the impression that you are referring to eating disorders. This needs to be more clearly defined.

c) Para 2: ‘Directional and activational aspects’: Although explained, the terms used are not immediately intuitive. Would you be referring to appetitive motivation and physiological/homeostatic hunger?

d) Para 4: The objective is defined as ‘development…… for measurement of hedonic and motivational states in human.’ As mentioned in para 3, various methodological approaches have been used to study hedonic and motivational states e.g. examining emotions, taste sensitivity, monetary cues. The objective needs to specify that this study uses food visual cues as the key approach. There are various motivational processes and the objective needs to specify the specific motivational process this study is examining e.g. hedonic hunger, homeostatic hunger, inhibitory control. See Bradley M Appelhans. Obesity (2009) 17, 640-647.

e) What are your hypotheses for this study?

3. In materials and methods

a) Subjects: If possible, please provide details of the body mass indices of the subjects. It is known that BMI is strongly associated with hedonic feeding and
motivational states.
b) Experimental sessions: It is unclear why two sessions in satiety is required.
c) Experimental sessions: It is unclear how the additional VAS can be used to evaluate the appetitive properties of the food pictures. It would help to list the questions being asked to the subjects, so as to differentiate this from the first VAS used to assess hunger levels.
d) Data analysis: It is unclear what the difference is between PSE and PSD and the implications of the difference. It will be useful to also describe them in more layman terms. Do they measure hedonic or motivational states?

4. In results
a) Hunger levels of study population: ‘Appetitive properties of food pictures on VAS showed relatively high scores…’. What is this relative to? Please specify.
b) Visual and time perception changes: Why was the sample size different for task A and task B? This needs to be accounted for as the difference may bias the results.
c) Again, the rationale behind having two satiety sessions needs to be specified.
d) It may not be surprising that the PSE and PSD are not correlated with hunger levels or appetitive values because VAS is a subjective, not objective assessment tool.

5. In Discussion
a) Para 2: ‘effect related to changes in both the internal emotional and motivated states’
   What does this refer to and how is this judged? Emotions are not measured in this study. Which motivational state would this be referring to?
b) Para 3: ‘omesencephalic dopamine system…..’ It is not clear how this sentence is linked with the earlier sentence on physiological need.
c) Para 3: If the VAS does account for both incentive and affective properties, a reference needs to be provided.
d) Para 3: The phenomenon ‘alliesthesia’ is described. How does the current study relates to this. Does the VAS measures emotions? Describing questions asked in the VAS may help to clarify this.
e) Para 4 under limitations: ‘geometric figures in colour could possibly…..therefore induce changes in size perception…’
   I thought the devalued counterparts for geometric figures were also used in the experiment. Wouldn’t that counterbalance this effect?

Minor revisions
1. Under Discussion para 2
a) ‘paralleled by modifications…’ the word modifications does not appeared to be suitable in this case.
Level of interest: An article of limited interest

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

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare I have no competing interests.