Reviewer's report

Title: Evaluation of emotion processing in HIV-infected patients and correlation with cognitive performance

Version: 1 Date: 29 November 2012

Reviewer: Uraina Clark

Reviewer's report:

This interesting manuscript reports on facial emotion recognition impairments in HIV patients – a newly emerging, but still understudied, area of research. As such, this study has the potential to make a valuable contribution to the literature. Yet, there are several methodological issues that need to be addressed, as well as some issues relating to content, described below.

Major Compulsory Revisions

1. In the Introduction and Discussion sections, please consider integrating results from a recent paper relevant to this topic: Lane et al 2012 (Neuropsychology, 26(6):713-22).

2. Are the HIV and HC groups matched on IQ? If there are group differences in IQ, have the authors assessed whether their main findings are driven by this difference? It is pointed out on Pg 18 in the Discussion that previous studies have “reported a relationship between facial emotion recognition and level of intellectual functioning [47, 48].” Were IQ measures obtained in the current study? If the issue of potential group differences in IQ cannot be addressed, please discuss this as a possible limitation.

3. Several analyses are conducted (e.g., Pearson correlations) but no corrections are made for multiple comparisons. It seems to me that one way to reduce the number of comparisons would be to restrict correlations to those emotions and/or neuropsychological measures on which HIV patients are found to be impaired compared to HC. Please also consider correcting for multiple comparisons.

4. Page 8, is it common to use a p-value of 0.1 to determine significance?

5. The variables included in the regression analyses are somewhat unclear, as is the specific number of regression analyses conducted. This raises 2 potential concerns: 1) The possibility that regression analyses may include too many predictors for the sample size. It’s often recommended that one include a minimum of 10 cases per IV. If this is not possible, could the authors consider applying a method for data reduction? 2) Multiple comparisons resulting in possible Type 1 errors.

6. Can additional justification be provided for the use of covariates in the regression analyses (e.g., age, education, depression levels, etc.)?
7. Some analyses appear to examine the relation between past AIDS-defining events and emotion recognition, but this group seems to be relatively small. Is it correct that the number of patients with AIDS-defining events is 9? How could this affect the authors’ interpretation of their results?

8. Did the HIV and HC groups perform similarly on neuropsychological measures?

9. Could the authors refine the arguments presented on Pg 12 in the paragraph beginning, “In agreement with the results of cross-cultural studies…”? I found this section to be a little confusing. Also please consider that, without the use of a non-emotional control task, the possibility remains that HIV patients in this sample could be impaired on fear recognition simply because this is the most difficult emotion to recognize.

10. Pg 12, what is the justification for the statement that, “fear recognition should be considered an early marker of cognitive impairment”? A similar statement is made on pg 13. It is possible that I have misunderstood, but it seems to me that these statements are not well supported currently. Beyond performance on verbal memory tests, there were no correlations between general cognitive ability and fear recognition. In addition, the HIV patients with ANI did not demonstrate significantly greater fear recognition difficulties than those without ANI. Could the authors clarify these statements a bit more, or perhaps provide additional support for these assertions?

11. Pg 13, I found the following phrase to be a little confusing, “…accounts for the observation that happiness is easier to recognize than other emotions.” Can this be clarified?

12. Pg 14, Can the authors clarify what is meant by the following: “This could explain the indirect relationship between CD4 cell counts and the development of abnormalities in emotion recognition, primarily happiness”? Perhaps I missed something, but I did not find these results reported in the manuscript.

Minor Essential Revisions

1. Page 7 what “cut-off” is used to define ANI status (e.g., 1 SD below the mean of demographically adjusted normative data)?

2. Please add data for the IADL scale to Table 2.

3. Page 7, how long were participants allowed to view facial stimuli before responding (e.g., unlimited time, 3 sec)?

4. The results from the ANOVA do not include df information for the residuals of the model. Is this standard practice for this journal? Also, is the df reported correctly for the main effect of emotion (Pg 9)?

5. Pg 13 & 14, Can the authors test their hypothesis that, “a deficit in recognizing happiness might occur only in subjects with more severe brain damage and
clinical evidence of a cognitive deficit”? Could a comparison between HIV patients with and without ANI speak to this possibility?

6. Table 1, there is no information about depression levels, prior drug use, HCV-status, or sexual orientation of the HC group. Can these data be provided? Do the HIV and HC groups differ on these variables?

Discretionary Revisions

1. Pg 11, it’s not clear to me what is meant by the sentence “Nevertheless, it cannot be held that the subjective experience and behavioural expression of fear depend only on task difficulty and have no dedicated neural substrates.” What is the connection between “behavioural expression of fear” and emotion recognition as measured in the current study?

2. Pg 13, it is possible that the authors, in referencing these particular papers, might be conflating education and IQ in this statement: “We observed an association with education, in agreement with previous studies that reported a relationship between facial emotion recognition and level of intellectual functioning [47, 48].”

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

Quality of written English: Acceptable

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.