Reviewer's report

**Title:** Cardiac Vagal Control and Theoretical Models of Co-occurring Depression and Anxiety: A Cross-sectional Psychophysiological Study of Community Elderly

**Version:** 1  **Date:** 6 October 2011

**Reviewer:** Mark Boschen

**Reviewer's report:**

This paper presents a statistically sophisticated analysis of the relationship between anxiety and depression symptoms, and cardiac vagal control. The paper has some notable strengths including a large sample, sophisticated statistical analysis, and thorough discussion of the findings of the research. The major weakness of the paper is the brief introduction which does not develop the rationale or theoretical background sufficiently, and the lack of clear hypotheses to be tested. Additionally, the method used in the multiple regression has some questionable elements as described below.

I think the research is interesting and worthwhile, and that the weaknesses are able to be rectified in a revision of the paper, and would recommend that the journal consider publication once the authors have attended to suggestions for revision below.

The brief intro to the tripartite model is good.

The rationale for the link between factors in the tripartite model and CVC is poorly developed and needs to be expanded considerably. As it currently stands, there are no specific hypotheses proposed for testing in the research. Once the reader reaches the results section, it becomes clear that the research is a comparison of different factor structures of the HADS and their relationship with CVC, but this should be articulated more clearly, with specific hypotheses, in the Introduction.

There is no specific argument for the use of elderly male participants. This needs to be better developed and argued by the authors.

The description of the statistical methodology is detailed and well presented.

The inclusion of a range of demographic and other variables in multivariate regression is questionable without a sound theoretical rationale for a linear relationship between these and the dependent variable. Preliminary analysis of correlations between these variables and the predicted variable should be conducted first, and then only those variables with a relationship with the dependent variable, or those with a strong theoretical relationship, should be included. Furthermore, some of these variables are nominal (e.g., gender, site of data collection) which would render their inclusion in a linear regression meaningless.

The Discussions does much better to integrate theory and results, and elaborate not only on the current results, but implications of using different HADS factor.
structures.
Limitations are acknowledged and discussed.

Some other minor points:

p.4. The sentence, “Consequently, in order... are demanded” is unclear and needs to be restructured / reworded.

p.8. Consider replacing “It spared symptoms...” with “During its development, the authors excluded symptoms...”

p.8. Consider replacing “…Mandarin-version of HADS was previously tested.” With “…Mandarin version of the HADS has been previously investigated.”

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

'I declare that I have no competing interests’