

Reviewer's report

Title: Environmental exposures and their genetic or environmental contribution to depression and fatigue: a twin study in Sri Lanka

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Reviewer: Yoon-Mi M Hur

Reviewer's report:

The paper attempted to explore contributions of specific environmental factors to the origin of depression and fatigue in the Sri Lankan population.

My major concern about the article is the methodology that the authors used. The authors mainly used logistic regression analysis to demonstrate whether the effects of 4 specific environmental effects exist or not. A preferable methodology would be structural equation modeling (SEM) because SEM can examine not only the significance of the environmental factors but also the 'magnitude' of the effects by providing the estimates of the parameters involved in the model.

The authors mainly explored genotype-environment correlation in the paper. But there is a possibility that genotype-environment interaction effects are important. That is, the specific measured environmental sources (parental care, life events, etc.) can moderate genetic factors that lead to the expression of fatigue and depression. The authors failed to address these possible GE interaction effects in the paper because they limited their analyses to logistic regressions. There are numerous studies on the basis of western populations that have shown GE interaction on depression (e.g., Hicks et al., 2009; Lau and Eley, 2008; Silberg et al., 2001).

I strongly recommend that the authors should use SEM to investigate the effects of GE correlation and GE interaction in depression and fatigue and estimate these effects.

A couple of other comments include:

1. The means and SDs of the ages of the male and female participants need to be reported in the paper.
2. What are the correlations among the 4 measured environments (early school leaving, standard of living, life events, and poor parental care)? The associations may be quite sizable. The authors need to better conceptualize these environmental factors before they run analyses.

Level of interest: An article of importance in its field

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.