Reviewer’s report

Title: The clustering of Health Behaviours and their relationship with Mental Health, Self-Rated Health and Quality of Life

Version: 1 Date: 29 March 2011

Reviewer: David Berrigan

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Discretionary Revisions

1. The authors claim that describing patterns of multiple health behaviors can contribute to planning of prevention and intervention strategies. This claim has been made about studies of multiple health behaviors since the 1970’s or earlier, yet I see little evidence that such studies have contributed to clinical or public health practice. It might be worth addressing this issue in the discussion.

2. The authors state that there is a lack of available data concerning patterns of health behavior from other countries. I think this point is overstated, a quick look at ISI Web of Science indicates there are analyses of patterns of multiple health behaviors in the US, Scotland, Finland, Switzerland, England, Holland, and across Europe. Therefore, the lack of available data argument does not seem so strong.

3. The authors also state that comparison is difficult among studies because of the use of different methods to describe behaviors. This argument is frustrating because the authors use cluster analysis to describe patterns of behavior in their sample. By its nature, each cluster analysis comes up with unique groups of individuals. Comparison amongst multiple samples could be facilitated by the use of index analysis - i.e. by examining patterns of health behavior identified on the basis of adherence or non-adherence to common guidelines for healthy behavior. Reedy et al. 2010 AJE 171:479-487 has a good discussion concerning features of the cluster analysis, factor analysis and index approaches to analyzing behavior patterns.

4. I found the use of the IPAQ PA score a little opaque. A score of 2569.74 has little meaning for most readers. Such scores should be rounded and perhaps a little more information could be given about the distribution of PA scores in Ireland. A figure might help.

5. The IPAQ has been validated to allow for cross country comparisons, yet this study seems to use it as a measure of individual health behavior in order to place individuals in groups within a cluster. I think this point warrants discussion.

6. More explanation of the Social Class variable is required. Specifically, some evidence that occupational categories are a good proxy for some underlying characteristics related to education, attitudes and income would be useful for readers less familiar with the Irish Social Class Schema.

7. I found the names of the clusters arbitrary and misleading. It would be better to
label these A-F or 1-6, that would allow a more dispassionate interpretation of the results.

8. Even though survey weights are not used for identifying clusters, they could be used to estimate the characteristics of people in the clusters after they have been identified. If so, then standard errors could be included in Table 2.

9. Table 1 could report S.E.’s as well.

**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'