Reviewer’s report

Title: Acculturation, immigration status and cardiovascular risk factors among Portuguese immigrants to Luxembourg: findings from ORISCAV-LUX study

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Reviewer: Cristina Baena

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Alkerwi, A. et al. analyze the association of overweight/obesity and acculturation among Portuguese immigrants in Luxembourg from cross-sectional recent survey. As cardiovascular diseases are the most important cause of death in Europe and immigrants’ movement has a major impact on health care systems, the topic is valid and warranted.

This study is a continuity of recent publications, the majority in this journal, describing data from a cardiovascular health monitoring program.

Although acculturation is still an unconfirmed pathway to health and disease, with lack of consensus in recent literature, the authors used up-to-date proxy measures and acknowledged its limitations. The topic is interesting and the paper is well written. However, I have some concerns:

Major Revision

1. Page 8, results, the authors describe results from table 1 and state that “educational attainment of Portuguese was much lower than that of Luxembourgers”. From the table, this statement is valid only for the first generation, not for the second one. Moreover, the p-values showed in table 1 seem to represent difference between the 3 groups and don’t show where the difference is. My suggestion is that the authors use post-hoc tests, describe it in the methods, present it in table 1 and rephrase the first 2 paragraphs of the results section.

2. Page 13, last paragraph, the authors could explain the limited variability between generations because it is not clear on the tables. Based on the tables and the text, the populations do not seem to have a difference that justifies the conclusion “…given the high prevalence of cardiovascular risk factors in Luxembourg, associated with a growing community of Portuguese…”. I feel the conclusion about the association is too strong given the presented findings.

Minor Revisions

1. Page 6, 3rd paragraph Pages 6 and 7, the bold font should be avoided.

2. Page 7, the word “interesting” is used to justify the length of residency as an exposure indicator, my suggestions is to rephrase it explaining why it is interesting.

3. Page 9, 3rd paragraph, there is a letter missing in the word Portuguese.
4. Page 10, first paragraph of discussion lacks reference support, even though it has been referenced in other sections.

5. Page 12, last paragraph, the participation rate in Portuguese residents is described to be lower than the Luxembourgers. It would be interesting to see the numbers in the text making it clear for the reader.

6. Page 13, the reference 19 is superscripted. I suggest splitting the same paragraph due to the importance of appraising acculturation and proxy measures.

7. Table 2, there is a row missing after Diabetes.

8. Table 3, the significance of difference between Portuguese 1st and 2nd generation regarding overweight/obesity is in a bigger size font and a legend for the p-values would facilitate the comprehension of the findings.

Discretionary Revisions

1. The abstract could address lack of heterogeneity found between Portuguese immigrants and Luxembourgers in risk factors other than overweight/obesity since it is a major finding of this study.

2. Page 5, Methods – The authors describe briefly how demographic and socio-economic and health-related characteristics were collected via self-administered questionnaire by trained personnel. This seems to be contradictory. Please clarify whether the questionnaire was self-administered or taken by trained personnel.

3. Page 6, paragraph 3, the authors refer to other publications for their cutoffs for the diagnosis of diabetes, hyperlipidemia and hypertension. To make it easier for the reader, I would advise the authors to mention the cut-offs used for the diagnosis saving the reader from having to look for other papers.

4. Page 7, 1st paragraph, the proportion of an individual's life spent in the second culture is described to range from 0.04 to 1. It would be interesting to describe why it starts with 0.04 and not 0.01 (being the extreme situation of being 1 year in Luxembourg for someone of age 69, which is the maximum age).

5. Page 8, the paragraph in the methods describing the models: reading this, it is not clear if the authors subsequently added factors to the previous model (making the model bigger in each step) or if they added the individual factors to model 1 (i.e. model 2 = model 1 + age and gender, model 3 = model 1 + socioeconomic etc). This only becomes clear when looking at table 4. Please add this information for clarity.

6. Page 10, the authors describe the insignificance of association between overweight/obesity after age and sex adjustment for the second generation of Portuguese immigrants. As mentioned for other parameters, this could be a power issue and should be mentioned in discussion.

7. Page 14, first paragraph, the fact that this is the first exploratory study in this population and will add knowledge to the matter seems to me rather a strength of the study than a conclusion.
**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.