Author's response to reviews

Title: Association of Acculturation and Country of Origin with Self-Reported Hypertension and Diabetes in a Heterogeneous Hispanic Population

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Author's response to reviews: see over
Dear Dr. Liberopoulos:

Thank you for considering our manuscript, MS: 1665495549725221, Association of Acculturation and Country of Origin with Self-Reported Hypertension and Diabetes in a Heterogeneous Hispanic Population, for publication in BMC Public Health. We very much appreciate the thoughtful comments and suggestions from the editors and reviewers and are grateful for the opportunity to address them.

In response to the suggestions, we have made substantial revisions to the manuscript. We believe these changes have considerably strengthened the manuscript and we hope you agree.

We have improved the ethics statement of our manuscript. Additionally, we have provided point-by-point responses to the editor and reviewer comments (in bold) and have made changes to our manuscript accordingly.

Response to Reviewer Comments

Reviewer #1, Josh Willey

Minor essential revisions:

-This is very well written paper with novel considerations addressed in their methods when it comes to considering the epidemiology of CVD risk factors among Hispanics. Previous papers have tended to “aggregate” (using the authors’ words) Hispanics, when clearly the group is more heterogeneous. The strengths are making an attempt to factor in acculturation and country of origin, and a good framework on how to consider Hispanic race-ethnicity in future studies (especially those focusing on a Hispanic paradox).

Thank you for your interest in our work.

-the tables and methods/results mention non-Hispanic blacks, and yet little is discussed about this group in the results or discussion. Is it necessary to include them?
Thank you for highlighting this point. We debated including the non-Hispanic black (NHB) category and ultimately decided to include the group for completeness of comparisons. However, we agree that the primary objective of this study was to understand hypertension and diabetes amongst Hispanics by country of origin and degree of acculturation. Therefore, we will omit the NHB group from our manuscript and simplify the results (see manuscript for revision).

-the main limitation in generalizability is related to the geographic nature of the dataset. There are essentially no Caribbean Hispanics in this dataset. In addition many of the countries of origin have small cell sizes in the tables, making it hard to know the importance of highly educated immigrants from countries with little representation for example. It is however interesting to know the differences of baseline education and SES between immigrants and US born Hispanics.

This is an important point and a frequent limitation of datasets available to study Hispanics. However, we believe that one of the strengths of this manuscript is that the data source (CHIS) allows for a large sample of heterogeneous Hispanic subgroups. Most existing data on Hispanics has focused exclusively on Mexicans. Caribbean Hispanics traditionally live in the eastern part of the U.S. and are therefore underrepresented in our study sample. This remains an important subgroup and we have noted this limitation in our revised manuscript.

-minor comment: not sure Puerto Rico is considered a different country
Although Puerto Rico is technically a U.S. territory, we believe that Puerto Rican Hispanics have a very distinct identity from Hispanics born elsewhere in the U.S.

-do the authors have any information on “Hispanic blacks” – this seems important given the new NIH insistence on progress reports of sub-classifying Hispanics as such. My guess is the numbers would be small given the small numbers of Caribbean Hispanics
We unfortunately lack specific information on Hispanic blacks likely because – as you previously note - Caribbean Hispanics are not well represented in our dataset.

-this had been raised in previous manuscripts I had worked on: in table 1 is there a potential difficulty with confidentiality when there is less than 5 people in one cell: ie only 1 person who is NHB and does not speak English well.
We agree with this point and have now deleted the NHB category from our study based on your previous suggestion.

Reviewer #2, Vasilios Kotsis
Comments
Authors could analyze the role of the reported BMI in the association of hypertension and diabetes with the different hispanic populations and discuss the role of obesity in the 2nd generation or USA born hispanic people more extensively
Thank you for this suggestion. We found that U.S.-born Hispanics had higher BMI as compared with foreign-born Hispanics. Higher acculturation was also related to higher BMI. Both of these findings have been previously described in prior literature. BMI and waist circumference, a measurement of abdominal adiposity, likely mediates some of our findings of diabetes and hypertension. However, further analyses of the complex interplay between obesity, acculturation, nativity, country of origin and chronic diseases are beyond the scope of this manuscript.

Reviewer #3, Evangelia Dounousi

A. Major Compulsory Revisions:
1. In results, the reader receives a lot of information due to many subgroups and many assessed parameters, and at some points it becomes difficult to follow. So, I think that for the facilitation of the reader it would be better the authors to distinguish in a new paragraph the results from the comparisons between US-born and Foreign-born Hispanics.
Thank you for this suggestion on how to better organize our findings. We have restructured the results to first discuss findings amongst U.S.-born Hispanics and then Foreign-born Hispanics. We have added a section to the results subsequently comparing the two groups. Additionally, we have significantly shortened our results by minimizing repetition of data also found in the tables.

2. In “discussion”, page 10, line 7, the authors report that self-reported English ability was an important predictor of hypertension and diabetes reported rate, while the results showed that “Limited English ability was not associated with reporting different rates of hypertension compared to English speakers” in Foreign-born Hispanics. Please correct.
We have revised the manuscript for any inconsistencies. Although limited English proficiency is an important metric of acculturation, we did not find an association with reported rates of hypertension and diabetes in the fully adjusted model. We did find some relationships between English ability and diabetes/hypertension self-reported rates in the step-wise adjusted models. However, for ease of interpretation of the results, we have decided to only include the fully adjusted models. We have clarified all of these points in our revised manuscript.

3. According to the results, Mexicans both US-born and Foreign-born reported at lower rates hypertension and at higher rates diabetes even after adjustment. Is there a possible explanation for that, as according to the existing literature there are high incidences of all cardiovascular risk factors (hypertension, diabetes, obesity and metabolic syndrome) among Hispanics in comparison with NHW (Roger VL et al. Circulation 2012; 215: e2-20).
Thank you for this comment. The patterns we found are similar to the recent AHA Heart Disease and Stroke Statistics you highlight. In this recent data found in pages 215-216 of the above citation, Mexican American men have an estimated prevalence of high blood pressure of 27.8% as compared with a rate of 33.9% for their Caucasian counterparts.
Similarly, Mexican women have an estimated prevalence of hypertension of 28.9% as compared with a higher rate of 31.3% among white women. On the other hand both Mexican men and women have approximately double the rates of diagnosed diabetes mellitus (11.0% versus 6.8% for men and 6.5% versus 12.7% for women).

As you point out in your summary statement, this paper describes the complex interactions between acculturation and country of origin on rates of hypertension and diabetes. Interestingly, Mexican Americans typically tend to have lower rates of some cardiometabolic risk factors (i.e. hypertension) yet tend to have increased rates of metabolic syndrome and diabetes. This may be partly due to differential rates of abdominal adiposity and dyslipidemia that create a different metabolic risk profile for Mexican Americans as compared with NHWs and other Hispanic subgroups.

4. In “discussion” the authors suggest that the “Hispanic paradox” holds primarily for Mexicans Foreign-born based on their finding according to which this subgroup reports hypertension at lower rates. In my opinion, this is an overstatement as data are cross-sectional, diabetes and obesity are reported in higher rates and there are no data regarding mortality of this population. I think that it would be better to either omit or rephrase this suggestion. Thank you for bringing this point to our attention. We agree that we lack sufficient data to extrapolate on the Hispanic paradox as it relates to our results. We have omitted this point from the discussion and abstract.

5. In “discussion”, regarding the US-born other Hispanics, the authors report that they had higher odds of reporting hypertension, which does not apply after the adjustment (Table 3). Moreover, the explanation given for the higher rates in reporting diabetes for the same subgroup is the higher socioeconomic status, which socioeconomic status does not seem to be higher comparing with the “other” Hispanics, at least from the data in table 1. Please define better. We apologize for not being clearer about this discussion point. We initially performed step-wise models but ultimately decided to only present the fully adjusted models for ease of interpretation and relevance. We found that in our fully adjusted models, foreign-born Other Hispanics are significantly more likely to report higher rates of hypertension and U.S.-born Other Hispanics are more likely to report higher rates of diabetes as compared to NHWs. The Other Hispanic category has higher rates of educational attainment and income levels as seen in Tables 1 and 2. We hypothesize that these findings may be secondary to higher rates of acculturation in these subgroups. We have clarified this point in our revised manuscript.

6. Please add the footnote of table 1 to table 2 as well, unless it does not apply. An additional footnote was added to table 2.

7. Regarding statistical analyses, it would be better all significant “p values” to be added, especially for “p values” with marginal CI 95% (table 3). In addition to confidence intervals, we have now added complimentary P-values in table
3. The p values and confidence intervals confirm equally the significance of the findings.

8. Regarding statistical analyses, please refer if “p values” were adjusted for multiple comparisons between subgroups. If not, it would be better to do so. The p-values were adjusted for multiple comparisons between subgroups using the Bonferroni method. This important statistical point has been added to our revised manuscript.

B. Minor Essential Revisions:
1. In “results”, page 7, 2nd sentence it will better first to refer the number of the US-born Hispanics (Table 1) and then the number of the foreign-born by adding (Table 2).
Thank your for the suggestion; this change was made.

2. In “results”, page 8, last line, please change the number of the table in the parenthesis. The correct table is (Table 3), instead of (Table 4).
We apologize for this oversight; the change was made to the revised manuscript.

3. In “results”, page 9, last line, please change the number of the table in the parenthesis with the correct table: (Table 4), instead of (Table 5) which does not exist in the submitted manuscript.
We apologize for this oversight and have made the necessary changes to the manuscript.

4. In ‘discussion”, page 11, please correct the term: “coronary artery calcium”. We have added the term coronary artery calcium (CAC) score. We mention CAC as an example of a marker of subclinical cardiovascular disease, which has increasingly been of interest in early detection and stratification of individuals at cardiac risk.

5. In “strengths and limitations”, page 14, 2nd paragraph, 3rd line, there is a misspelling. Please correct the word “insured” with “uninsured”.
We apologize for this oversight and have made the necessary changes to the manuscript.

C. Discretionary Revisions
1. The authors have used 4 variables as measures of acculturation. One of them was the “Self-reported English language ability”, which classification into 4 and then 2 categories includes an element of subjectivity and I think that it would be better to mention in the limitations of the study. English language ability was self-reported. We have added this as a limitation in our methods section. However, the U.S. Census defines limited English proficiency (LEP) as someone who self-reports speaking English less than very well and we have followed this convention. In addition, the published literature on acculturation typically uses this division of categories. Because this is an important metric of acculturation, we have maintained it in our analyses.

2. Consider omitting data derived from NHB from the tables, as they are not being
used in the analyses. We have deleted this group from our analyses.

In summary and in my opinion, the present study successfully reintroduces the effect of acculturation on chronic diseases and marks out the importance of heterogeneity among Hispanic population regarding common health issues. On the other hand, their results show a complex relationship between acculturation and self-reported rates of diabetes and hypertension, as the authors correctly commented, which complexity raises new issues regarding the optimal method of assessing this problem in order to provide new prospective into planning public health interventions.

Thank you very much for your ongoing consideration of our work. Please do not hesitate to contact us if there are other changes or clarifications we can offer.

Sincerely,

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