Author's response to reviews

Title: "Sleep Disparity" in the Population: Poor Sleep Quality is Strongly Associated with Poverty and Ethnicity

Authors:

Nirav P Patel (min8patel@gmail.com)
Michael A Grandner (grandner@upenn.edu)
Dawei Xie (dxie@mail.med.upenn.edu)
Charles C Branas (cbranas@upenn.edu)
Nalaka Gooneratne (ngoonera@mail.med.upenn.edu)

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Author's response to reviews: see over
Dear Editor,

Please review the enclosed revised manuscript, entitled “Sleep disparity” in the population: Poor sleep quality is strongly associated with poverty and ethnicity for publication in BMC Public Health. The manuscript investigates the potential effects of socioeconomic factors on adult sleep quality. We hope the journal finds the manuscript attractive from perspectives of scientific rigor, content, and public health importance.

We have addressed all comments by the reviewers and hope that our responses adequately address the reviewers’ concerns. See the attached “Response to Reviewers” document.

We anticipate your re-review.

Sincerely,

Michael A. Grandner, Ph.D.

Response to Reviewers

EDITOR:

The editorial team would like you to clarify in your manuscript whether the data you analyzed in your study is publically available of if you needed permission to use it.

The PHMC data is not publicly available, though requests for access to the data are frequently honored. We did obtain permission from the PHMC to use this dataset, and this has been added to the Methods Section.

REVIEWER 1:

1. The paper mentions the use of sample weights. However, there needs to be an explanation of the nature and extent of these weights. Many statisticians would recommend that analysts do not use weights when conducting multivariate analyses such as those in this paper, since weights may distort the statistical significance of variables in logistic regression models. If the weighting variables are already included as variables in the logistic regression analyses, it would be preferable for the authors to undertake the analyses without the use of weights.

The data have been re-analyzed without the use of weights as suggested, and the results are presented in the revised Results section. We present both weighted and unweighted results, though primarily discuss weighted results in the text of the paper.


We appreciate the suggestion and have added this and other relevant references.
3. The response rate of 28% is very low. There needs to be a fuller discussion of the likelihood of any potential biases related to the low response rate.

This has been added to the Discussion section.

4. The authors include ‘disabled’ in the category with ‘unemployed’. It would be more appropriate to recategorise the ‘disabled’ either as a separate category or grouped with ‘other’.

We agree and have re-analyzed results with disabled as a separate category.

5. The authors construct an interaction variable of race and poverty level which is usefully included in the multivariate models in Table 3. It would also be valuable to include this interaction variable in the distributions of variables displayed in Table 1.

We appreciate the suggestion and have added this to Table 1.

6. In the adjusted models in Table 3, it was unclear why the authors included marital status in Model 3. The positioning of the marital status variable in these hierarchical models needs some discussion and justification. NB. It is usual to include marital status as a socio-demographic variable, and therefore enter marital status into models before socio-economic variables. Some justification for including marital status at the same time as health variables would be helpful. At present, the changes in odds ratios that the paper discusses between models 2 and 3 are attributed to differences in health between the race/poverty subgroups, but they may also be partly due to marital status differences.

We agree and, accordingly, have moved marital status to Model 2.

REVIEWER 2:
1. Patel’s paper in SLEEP 2006 Correlates of long sleep duration relates to this paper and you may want to incorporate it into your literature review?

We appreciate the suggestion and have expanded the review to include this and other papers that are relevant to the study.

2. IS PROC SURVEYFREQ misspelled? (Stats section)

This has been fixed.

3. Poverty isn’t just about monetary income. Is it worth simply relabeling this as income dichotomized at the so called poverty line? (optional suggestion)? This may relate to some of your observations about African Americans who may need to work multiple jobs to support their families above the poverty line but to a point where they do not have sufficient time or opportunity to sleep (for instance shiftwork)
We agree that ‘poverty’ is more than low income. We have addressed this by renaming the ‘poverty’ variable as income, dichotomized as suggested.

4. Should make the provenance of the data clear in the abstract or title

This has been added to the abstract, as suggested.

5. I agree in principle with your sleep sufficiency argument. What may help is external validity- does sleep sufficiency predict adverse outcomes better than sleep duration- can you make that argument? (optional suggestion)

We have expanded the Background section to include further justification of exploring sleep quality versus duration.