Author’s response to reviews

Title: Development and Validation of a Simple-to-use Clinical Nomogram for Predicting Obstructive Sleep Apnea

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Author’s response to reviews:

Dear editor,

We sincerely appreciate your consideration of our paper, and we thank the reviewers for their high enthusiasm and comprehensive analyses of our manuscript. In response to the constructive comments, we have made every effort to fully address the concerns and revised our manuscript accordingly, with additional data, statistical analyses and new wording. The main corrections in the paper and the response to the comments are as following:

Point-by-point response to the comments:

Technical Comments:

Comments 1: Please remove the qualification of all authors and role titles from the title page. You may retain this information in the ‘Author information’ part of declaration, if you please.

Response 1: Thank you very much for your comment. We removed the qualification of all authors and role titles from the title page as you suggested.

Comments 2: While assessing the manuscript, we found several instances of overlap, especially within the methods. Please address, suitable reference and re-word in your own words.

Response 2: Thank you very much for your comment. We cite suitable reference and rewrite the sentences in the method part as you suggested.
Comments 3: Please add the heading 'Conclusions' after the discussion with the main manuscript and state the conclusion of the manuscript/study under it.

Response 3: Thank you very much for your comment. We added the heading 'Conclusions' after the discussion according to your advice.

Comments 4: For all abbreviations used in the text, these should be defined in the text at first use, and a list of abbreviations should be provided after the Conclusions in the main manuscript.

Response 4: Thank you very much for your comment. We checked all abbreviations used in this text, and they defined in the text at first use. We also provide a list of abbreviations after the Conclusions in the main manuscript.

Comments 5: After the list of abbreviations, please add the heading "Declarations".

Response 5: Thank you very much for your comment. We added the heading "Declarations" as you suggested.

Comments 6: Under the heading "Funding", please declare the role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

Response 6: Thank you very much for your comment. We declared the role of the fundings in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript according to your suggestion.

Comments 7: Can you please clarify the roles of author Xiaolong Zhao in the design, execution and analyses of the presented study? Please make sure all authors qualify for authorship. Guidance and criteria for authorship can be found in our editorial policies at https://www.biomedcentral.com/getpublished/editorial-policies#authorship

Response 7: Thank you very much for your comment. Xiaolong Zhao played an important role in collecting data. We added this in authors’ contributions.

Comments 8: Please follow the Vancouver style of reference formatting in accordance to the journal format.

Response 8: Thank you very much for your comment. We changed the style of reference formatting in accordance to the journal format.
Comments 9: Please include the 'Consent to publish' statement within the declarations. BMC Pulmonary Medicine operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Response 9: Thank you very much for your comment. We included the 'Consent to publish' statement within the declarations as you suggested.

Reviewer reports:

Thomas Penzel (Reviewer 1):

Comments 1: Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format. Please overwrite this text when adding your comments to the authors.

Response 1: Thank you very much for your comment. All comments for the authors and responses will be uploaded.

Comments 2: The study is well conducted and addresses the important problem of assessing the risk to suffer from sleep apnea. The introduction nicely shows the limitation of questionnaires and currently available scores.

Response 2: Thank you very much for your comment. We appreciate for your warm work earnestly.

Comments 3: A limitation of the new proposed method is, that biochemical markers are needed. The assessment of glucose, insulin, and apolipoprotein B raises concerns in term of money, time, and effort. This needs to be specified with more detail and that this is needed, should be addressed in a limitation section of the paper.

Response 3: Thank you very much for your comment. We agreed that the assessment of biochemical variables raises concerns in term of money, time, and effort when compared with simple screening questionnaires. We addressed these in the limitation section of our paper.

Comments 4: Moreover, for the figure 2, the new nomogram, units of measures need to be added. If they are not added in the figure itself, then at least in the legend, the units should be added. This is also important for gender, where 1 and 0 are mentioned without saying which gender corresponds to which number.
Response 4: Thank you very much for your comment. We added the units of measures and gender (0, 1) to the figure legends as you suggested.

Comments 5: It would be good to add an example drawing for a patient with severe sleep apnea, that new users understand how to proceed with the nomogram.

Response 5: Thank you very much for your comment. We added an example (one patient with severe OSA) as you suggested (Table 3).

Comments 6: The application of the LASSO method appears sound, however more details to be included in an online addendum would help to make this more transparent.

Response 6: Thank you very much for your comment. We added more details about the LASSO method in supplementary material as you suggested.

Comments 7: The question to be addressed as well is: if this is not intended to replace PSG, this is good and obvious. However is it intended to replace HSAT / polygraphy with limited channels?

Response 7: Thank you very much for your comment. The intention of our study is to help physicians better make decisions on PSG arrangement for the patients referred to sleep center. It is not intended to replace HSAT / polygraphy with limited channels recently. There’s still a long way to go to find a simpler way to replace HSAT / polygraphy.

Comments 8: What is the intrascorer variability of your reference polysomnography scoring? A major limitation is, that your analysis relies on automatic Alice PSG scoring with little manual editing. Results may be much worse when comparing against another polysomnography system. Would you agree? This needs to be mentioned in the limitations section at least.

Response 8: Thank you very much for your comment. As mentioned in Page 6, line 24, we mentioned that “the sleep recordings were staged automatically by software and then checked manually by a skilled technician”. We are sorry that we did not put this sentence into the right paragraph. In fact, we used “Alice 4 or 5; Respironics, Pittsburgh, PA, USA” for sleep recording and the sleep data would be manually checked by a skilled technician (Lili Meng) in next morning. We moved this sentence to the previous paragraph (Page 6, line 14).

Aysel Sünnetçioglu (Reviewer 2):

Comments 1: The use of AASM 2007 scoring rules was not justified and that could be one of the potential limitations of the study. The authors did not mention if nasal cannula was used (the term oronasal airflow is not specific)
Response 1: Thank you very much for your comment. 1) We agreed that the use of AASM 2007 scoring rules was not justified and could be one of the potential limitations of our study. Because our study has conducted since 2007, so we used AASM 2007 scoring rules in order to keep the sleep evaluation consistent. We added this in the limitation part. 2) We are sorry for we did not make the sleep evaluation clear. In our study, nasal cannula was used.

Comments 2: Why smoking and alcohol use not explored? , although high risk factors for osa. this risk factors might be relevant nomograma?

Response 2: Thank you very much for your comment. Both smoking and alcohol use are high risk factors for OSA. In this study, we only incorporated objective demographic, biochemical, and anthropometric parameters to establish nomogram. We did not consider subjective variables (through recalling of patients) such as smoking and alcohol use, as they are difficult to quantify.

Comments 3: In the discussion section, please compare the findings of your study with previous reports. I also recommend to the authors to review the article. A Nomogram for Predicting the Likelihood of Obstructive Sleep Apnea to Reduce the Unnecessary Polysomnography Examinations. "Luo M, Zheng HY, Zhang Y, Feng Y, Li DQ, Li XL, Han JF, Li TP. Chin Med J (Engl). 2015 Aug 20;128(16):2134-40

Response 3: Thank you very much for your comment. We added a section of discussion to compare the findings of your study with previous reports as you suggested.

Comments 4: The direct treatment recommendations should not be made using nomograms. This tool may help physicians better make decisions on PSG arrangement for the patients referred to sleep center. The conclusion is not adequate, therefore should be rewritten concluding.

Response 4: Thank you very much for your comment. We agreed that the conclusion is not adequate, we rewrite the conclusion as you suggested.

Comments 5: Page 7 Line 61 therein Correct as there in

Response 5: Thank you very much for your comment. We Corrected “therein” to “there in” according to your suggestion.

We appreciate for reviewers’ warm work earnestly, and hope that the correction will meet with approval. Once again, thank you very much for your comments and suggestions

Sincerely,

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