Reviewer's report

Title: Prevalence and associated factors for Pterygium in Han and Mongolian adults: acrosssectional study in inner Mongolian, China

Version: 0 Date: 19 Aug 2019

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

Yes - the approach is appropriate

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?

Yes - experiments and analyses were performed appropriately

STATISTICS - Is the use of statistics in the manuscript appropriate?

No - there are issues with the statistics in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

No - there are major issues

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?

Maybe - with major revisions
PEER REVIEWER COMMENTS:

GENERAL COMMENTS: Authors perform a large population based survey and report prevalence and risk factors associated with pterygium in a multiethnic Chinese population. The study is relatively well done. My specific critique are below:

REQUESTED REVISIONS:

My specific comments:

In the purpose section of the abstract, authors should mention whether the analysis on pterygium was part of a larger population based study (i.e. CNHS as mentioned in the manuscript) or not. If yes (which is most likely), authors should clearly mention the intention of the population-based study. For example there are many reports from the NHANES studies from the USA which are a sub-analysis from the larger dataset.

In the methods, authors should also give an idea of what parameters were measured. If too many, they can be grouped and names of groups mentioned. Also please mention how pterygium was detected during the survey. Was it based on torch light or slit lamp or imaging with remote interpretation?

In the results, please provide the odds ratios from the multivariable analysis along with the 95% confidence intervals. Merely mentioning p values is not adequate. Factors such as living in rural areas, outdoor occupation, and education level appear to be interdependent on each other causing variance inflation. Have authors checked for this?

What about interaction terms during statistical modelling?

The introduction is well written. Authors are convincing that there are a lot geographic and ethnic differences in the prevalence of pterygium, including within the same region, and hence the rationale for the study is presented nicely.

Methods: It will be very useful for an international reader base if authors depict the geographic areas studied on a map of China.

What is meant by mental patients? Was a mini-mental scale or any such instrument used to assess the mental status of participants?

The level of exercise, DM, HTN, and lifestyle should include the words "self - reported".

What is meant by "daily visual acuity?" Did authors measure visual acuity on multiple days?

In statistical analysis section, authors mention that the association between pterygium and related factors, factors with P&lt;0.05 were brought into a multivariate regression analysis model to assess possible risk factors or protective factors for pterygium". However, this is inappropriate.
A univariate analysis between presence of pterygium and risk factors should be first done, then a multivariable analysis should be performed. This is likely a printing error and should be corrected.

In results, authors say "We noted that the prevalence increased with age". Please provide a metric to quantify this. For example, prevalence increased XX times per 10 year increase in age (95% CI= XX - XX).

Authors should mention how the best fit model was derived from all the factors available. Like mentioned above, there appears to be an over inflation and this needs to be addressed, including use of interaction terms.

The forrest plots are unnecessary and are a repetition of the data in the tables. Authors can keep any 1. I recommend keeping the table. The subgroup analysis is anyway shown in forrest plots.

Please remove the word "rare" from the first sentence of discussion. You can replace it with "first" if you wish.

The discussion is very long and a bit tedious to read. The section on gender can be omitted. Sections on obesity and BMI can be significantly shortened.

When others have found ethnic differences within different groups in China, authors report no differences between Han and Mongols. This is in contradiction to other reports. Please provide a plausible reason for this in the discussion. This was the initial hypothesis and main crux of the paper but has not been dealt with in the discussion at all.

ADDITIONAL REQUESTS/SUGGESTIONS:

Nil

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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Please complete a declaration of competing interests, considering the following questions:

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