Author’s response to reviews

Title: A review on the epidemiology of myopia in school children worldwide

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Version: 1 Date: 29 Jul 2019

Author’s response to reviews:

Response to the reviewers’ comments

We are very pleased that the revised version of our paper is being considered for publication in BMC Ophthalmology. Please find below our point-by-point responses to the comments of the reviewers:

>>Reviewer reports:
>>Jason Cheuk-Sing Yam (Reviewer 1): This is a comprehensive review on the epidemiology of school myopia with lots of information.

>>While the data is important and interesting, the author may need to highlight the new findings and focus of the whole paper.
>>Rather than just presenting all data in a systematic review way, more detailed explanations on the observed difference, together with the potential reasons for the risk factors are all relevant to understand this topic.

We have reorganized the manuscript, by moving several sections to the Discussion section and rewriting the results section, in order to improve readability.

>>Serge Resnikoff (Reviewer 2): 1. General comments
>>This manuscript is a literature review of the papers addressing epidemiology of myopia in school children published between 1st Jan 2013 and 30th Nov 2018.
>>This study is not a meta-analysis, nor a systematic review.
>>Authors did not attempt to assess the strength of evidence for the different risk factors they report. In that respect, this manuscript is mainly a compendium, presenting main findings of the studies published during the period under considerations.
>>The review process should be described in more details - currently, it is not clear how the papers were actually reviewed, which criteria were used, how many papers were entered in the review process and how many were eventually retained.
The criteria have been described in the subchapter “2.2. Study selection”: Studies reporting the prevalence of myopia were included in our analysis if they met the following criteria: 1) the design was a cross-sectional or cohort study 2) measurements were taken with a stationary or handheld auto refractometer 3) included a clear definition of myopia and presented if the measurements were cycloplegic or non-cycloplegic 4) the prevalence was assessed in children aged 6–19 years 5) the study presented results for a minimum of 100 patients.

There is no "discussion" section where the strength and the limitations would be presented and discussed.

The article was reorganized, with creating a new chapter discussion.

Specific comments and recommendations

P2 L2-3: There is no quantitative evidence provided about this trend in this paper. Abstract should reflect the actual content of the manuscript.

The abstract was reformulated.

P2 L 10: I would make clear in this section that this is a literature review, to avoid confusion with systematic reviews or meta-analysis.

Added in the methods section.

P2 L26: Age range should be spelled out.

Corrected.

P1 L35: Please define "school children" in terms of age

The definition was added as follow: “aged 6–19 years”

P3 L40: "PubMed and Medline were the main resources": please clarify which other databases were used. This was clarified. We included only PubMed/Medline articles.

P3 L51: Please clarify how study methodology and robustness of data were actually assessed. Which criteria were used

Studies reporting the prevalence of myopia were included in our analysis if they met the following criteria: 1) a cross-sectional or cohort design 2) refractive error measurements taken with a refractometer 3) clear definition of myopia and information on cycloplegic or non-cycloplegic measurements 4) prevalence assessed in children aged 6–19 years 5) studies with a minimum sample of 100 children.

As our study revealed, several studies (even published in respected journals) analyzed non-cycloplegic refraction. This factor strongly influences the outcomes. Secondly, several studies presented different definitions of myopia (as was elegantly presented by Flitcroft et al. 10.1167/iovs.18-25957) . These issues were moved to the discussion section.
Any textbook or only those published during the 2013-2018 period?

As no textbooks were included, this sentence was removed.

A section is missing here: how many papers have been entered in the review process? How many have been dropped? What were the main reasons from rejection? Transparency on the review process is critical.

The manuscript was supplemented with this information: “Twenty-eight articles fulfilled the criteria for being included in the main analysis. One study was excluded, as it presented data from primary care optometry clinics.[9] Additionally, 49 articles were included in the discussion and analysis of risk factors.”

Definition of myopia as "greater than or equal to -0.5 D". It has been recommended that, "in quantitative contexts, myopia always should be treated as a negative value and mathematical comparison symbols should be used in their strict mathematical sense." In that respect, this section should read ... a SER less than or equal to -0.5..., less than 0.5 D... less than or equal to -0.75 D etc. See following article: Flitcroft DI, He M, Jonas JB, et al. IMI - Defining and classifying myopia: a proposed set of standards for clinical and epidemiologic studies. Invest Ophthalmol Vis Sci. 2019;60:M20-M30. https://doi.org/10.1167/iovs.18-25957 (see page 23). This reference might be more relevant than the current one (ref [9])

The definition was updated and the citation was changed as suggested.

I assume this is in non-cycloplegic surveys. Please clarify.

Corrected.

This is beyond the scope of this paper (school children).

Removed.

Recommend using past tense throughout the results section.

Corrected.

Science is not about beliefs, especially in literature reviews. Consider another verb reflecting whether it is a hypothesis or a finding supported by evidence.

Replaced by found.

Recommend providing age (or age bracket) rather than grade at school as it may vary from country to country.

Corrected.

"Asian children at highest risk": is it highest risk or highest prevalence?

Corrected to “highest prevalence”
"concluded" might not be the appropriate term as this paper is not a meta-analysis.

Removed.

What is "normal visual acuity"?

Replaced by “unaided visual acuity equal to or better than 6/6”

Proportion of school children with High Myopia is an important indicator and should be further developed.

This information was added.

Same comment as above. Is this the conclusion of authors (based on what, as there is no meta-analysis?) or the conclusion of the authors of the reported papers?

This conclusion was of the authors of the reported paper. As it was based on weak evidence it was removed from our manuscript.

"In young adults"- is this still about school children?

Sentence removed.

Repetition of "had a higher risk"

Corrected.

Interventional studies might be also needed to better understand "what works" in different settings and age groups.

This information was added.

Table 1: what does "selected studies" mean here? All the studies that were retained for the review? Or a selected subset (e.g. cross-sectional studies reporting prevalence?). In any case, the list of the papers retained needs to be provided. Could be a supplementary material available on line. It would be also helpful to know which studies were cycloplegic and which were not (additional column).

The table title was changed: “Table 1. Cross-sectional studies reporting the prevalence of myopia in school children”. The studies are currently listed in the newly created Appendix 1.

Table 1: suggest using Global Burden of Diseases regions in order to have a better granularity than "continent". At least differentiate South Asia (India) and East Asia (China, Korea, Japan).

We have differentiated countries in Asia as suggested and changed the column head to “Region”. We believe further changes should not be made in this column, as for example the major region “High-income” includes both South Korea and Western Europe.

http://www.healthdata.org/sites/default/files/files/images/GBD_map_GBD2010_regions_supерregions.png
>>Table 1 "cohort": shouldn't this be "age range"?

Corrected. However, not all studies specified a particular age range.

>>Table 2. I would recommend indicating the country rather than the continent, which is quite vague given the geographical variations in geographical and cultural environment.

Changed to Country.

>>Fig 1. Given the variations across places, age-groups and over time, I would strongly recommend using country names (instead of continents). I would also recommend adding age range and year of the study. This would make the figure much easier to read and interpret. It would be a great summary of the paper and likely to be widely quoted.

The figures was changed accordingly, additionally we have divided into Figure 1 (cycloplegic measurements) and Figure 2 (non-cycloplegic measurements)

We thank the reviewers for their constructive comments.

Sincerely,
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