Reviewer’s report

Title: Different patterns of myopia prevalence and progression between internal migrant and local resident school children in Shanghai, China: A 2-year cohort study

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Reviewer: Jian Li

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The present study reported the prevalence of myopia in migrant and local children at 4 primary schools of Shanghai, China. Moreover, the different patterns of myopia progression between the two groups of children were investigated after a 2-year follow-up. The study reported data from both cross-sectional investigation and longitudinal follow-up which is useful information to the field. There are several points needing clarification before being considered for publication.

1. Major issues

(1) This study aims to reveal the effect of migration on myopia occurrence and progression. It is reasonable to compare the differences of the myopic status between migrants and locals. One of the important results is that the time spent on homework (near work), but not time spent on outdoor activities, affected myopia progression. However, in a paper published in BMC Ophthalmology recently [Lin, Z., et al. (2017). "Near work, outdoor activity, and myopia in children in rural China: the Handan offspring myopia study." BMC Ophthalmol 17(1): 203)], no association between near work and myopia was found in Chinese rural children. And protective effect of outdoor activity against myopia was observed. The reasons why this study reported contrary results should be discussed thoroughly.

(2) To "uncover myopia problems for migrant children in urban China", 841 migrant students and 1081 local students from two migrant schools and two local schools may not be representative of the intended study population. Moreover, the mixture of migrants and locals in the selected schools could eliminate some potential differences between the two groups. An even greater sample size might be required to determine the effects of some factors.

(3) Furthermore, as heterogeneities in personal and environmental factors also existed in migrants, more detailed information, such as the variety of time they migrate to the city and their living environment, could be important. In the current study, all of these factors are represented by 'migrant' in the analysis.

(4) In line 382, "Reading and outdoor hours were assessed by a brief investigation". The "brief investigation" should be clarified in the Methods section. How did the authors assess the near-work and outdoor activities? The authors have to prove the validity of the investigation.
(5) In this study, migrants in grade 3 had longer reading time and outdoor time than the locals. The authors also assumed that migrants spent longer time on entertainment, such as watching TV and playing computer games, than local children. Therefore, the relationship among study pressure, reading time, and outdoor time must be assessed to support the conclusion of "The acceleration of myopia prevalence and progression of migrant children might be resulted from the change of environment, such as intensive education pressure". Moreover, the background, methods, and results in the abstract also did not support this conclusion. Please revise.

2. Minor points

(1) The authors should be careful to avoid typos and grammatical mistakes, such as a missing of "a" for "China" in the title, and in line 342 to 345, "Reasons could be 1) as time goes on, the study pressure rose in migrant children, but remained unchanged in resident children; 2) apart from study pressure, other environmental risk factors existed, which did more harms to migrant children than to resident children."

(2) The tables and figures should be presented at a standard level. For example, the unit should be marked on Figure 2. And the directions of Y-axis titles of Figure 3 should be corrected.

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

No

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

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