

Peer Review File

Article information: <https://dx.doi.org/10.21037/tp-23-130>

Reviewer A

This study highlights the importance of early screening and intervention for myopia in children and adolescents in the Ledong and Wanning areas. It also suggests that there may be demographic and geographic differences in the prevalence of myopia, which can help target specific subpopulations for preventive measures. It is a topic of interest to the researchers in the related areas but the paper needs very significant improvement. The detailed comments are as follows:

Reply Reviewer A: Thank you for your professional and constructive suggestions, which have greatly helped to improve our manuscript. We have checked each item and made revisions. Please refer to the following detailed responses and revised versions of the manuscript.

1. The study suggests that there are demographic and geographic differences in the detection rates of myopia among children and adolescents in the Ledong and Wanning areas, with higher rates observed in the Han ethnic group and in girls. This highlights the need for targeted interventions and increased public awareness of myopia in these populations. Further research is needed to identify the underlying risk factors contributing to these differences and to develop effective intervention strategies to prevent and manage myopia in these populations.

Reply 1: We reanalyzed the available data and discussed the risk factors for myopia using univariate and multifactorial analyses, and added solutions for myopia prevention and control in local children to the conclusion.

Changes in the text:(see Page 6-7, Line 189-214; Page13, Line 409-418)

2. This study used a cross-sectional study to investigate the visual acuity and refractive factors of adolescents in the Ledong and Wanning areas of Hainan Province, so as to provide a certain basis for local myopia prevention and control. The author needs to emphasize why adolescents from these two regions are selected for research.

Reply 2: The Ledong area is the most concentrated area of Li in Hainan, and the Li in the Ledong area is less mobile than the Li in other Li settlements, and we believe that the Li in Ledong area may retain the most primitive genetic characteristics of ocular biology. The Wanning area is the scattered ethnic minority area with the largest proportion of Li population in Hainan Province, and the Li population in Wanning area is more mobile than other areas, and the genetic characteristics of the ocular biology of

Li in Wanning may change. We wanted to investigate the effect of environment on myopia by comparing the differences in visual acuity, refractive status, and biological parameters between the same ethnic groups in these two areas.

3. The three sub headings in the results section are the same, the author should clarify the focus of the research on each heading.

Reply 3: We have revised the headings according to age, gender and region.

Changes in the text:(see Page 7, Line 216; Page8, Line 247; Page9, Line 270)

4. In the Discussion, the author should discuss the factors that caused the difference of visual acuity, refractive status, and biological parameters between Han and Li ethnics in the Ledong and Wanning areas of Hainan Province.

Reply 4: We added a discussion of risk factors contributing to the differences between the Han and Li ethnics in Ledong and Wanning.

Changes in the text:(see Page 10-11, Line 321-337)

5. The shortcomings of this article need to be elaborated in more depth and cannot be confined to issues such as incomplete data due to the loss of machine measurement.

Reply 5: We have revised the discussions on the shortcomings of this article.

Changes in the text:(see Page 10-11, Line 321-337)

6. The format of references needs to be consistent, such as Ref.1 and Ref.2.

Reply 6: We have revised the format of all references.

Changes in the text:(see Page 14-16, Line 441-530)

7. The quality and resolution of the Figures need to be improved. In addition, detailed description is required for the figure legends.

Reply 7: We have adjusted the quality and resolution of the figure. The figure legends correspond to the tables, and the detailed descriptions are in the results section.

Changes in the text:(see Page 17-18, Line 532-548)

8. Measurement data are expressed as mean standard deviation. The author should indicate the clear indicators of the Measurement data in Figure legends.

Reply 8: We have added indicators for the measurement data in the Figure legends.

Changes in the text:(see Page 17-18, Line 532-548)

Reviewer B

Reply Reviewer B: Thank you for your professional and highly scrutinized detailed

suggestions. These specific suggestions have been very helpful to us. We have checked and revised each comment one by one. Please refer to our revised manuscript and response.

Line 32: Consider changing the Background to: “To determine the prevalence of refractive error and ocular biometric data (corneal curvature, axial length, and central corneal thickness) in 6- to 15-year-old children of Li and Han ethnicities of China”

Reply: We have revised the background as advised.

Changes in the text:(see Page 2, Line 52-54)

Line 39: Not clear what is meant by vision testing.

Reply: We have revised "vision testing" to "visual acuity".

Changes in the text:(see Page 2, Line 59)

Line 40: Delete “Lenstar” and substitute with “ocular biometric data”

Reply: We have revised "Lenstar" to "ocular biometric assessment".

Changes in the text:(see Page 2, Line 60)

Line 40: Consider changing “computer optometry under nonciliary paralysis” to “autorefractometry without cycloplegia”

Reply: We have revised "computer optometry under nonciliary paralysis" to "autorefractometry after cycloplegia".

Changes in the text:(see Page 2, Line 59)

Line 41: Consider changing “Lenstar testing” to “ocular biometric assessment”

Reply: We have revised "Lenstar testing" to "ocular biometric assessment".

Changes in the text:(see Page 2, Line 60)

Line 42: Consider changing “detection rate” to “prevalence.” Define the criteria for myopia, hyperopia, and astigmatism here.

Reply: We have revised our text as advised.

Changes in the text:(see Page 2, Line 62-65)

Lines 44, 46, 48, 52, 55, 57: Consider changing “detection rate” to “prevalence.”

Reply: We have revised our text as advised.

Changes in the text:(see Page 2, Line 69,71,73,75,79,81,82)

Line 53: Consider changing “incidence” to “prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 2, Line 77)

Line 60: Delete “Myopia detection rate” and substitute with “Myopia”. Add “astigmatism”, “Chinese children”, “refractive error”

Reply: We have revised our text as advised.

Changes in the text:(see Page 2, Line 85-86)

Line 64: Consider changing “detection rate” to “prevalence.”

Reply: We have revised our text as advised.

Changes in the text:(see Page 2, Line 36)

Line 152: Most studies of the prevalence of refractive error in children use a criterion for myopia as a spherical equivalent $\leq -0.50D$. You used a criterium of a spherical equivalent $\leq -0.75D$ for myopia. Consider changing it to $\leq -0.50D$ so your results can be compared to other studies.

Reply: We have revised our text as advised.

Changes in the text:(see Page 5, Line 174-176)

Line 169: Consider substituting “constituent ratio” with the most common measure used in other studies of “prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 6, Line 183)

Lines 178,182, 186, 209, 211,233, 238: Change “detection rate” to “prevalence.”

Reply: We have revised our text as advised.

Changes in the text:(see Page 7-8, Line 184,218,222,226,230,249,251)

Line 190: Change “incidence” to” prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 7, Line 230)

Line 217, 219, 221, 241: Change “incidence” to “prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 8-9, Line 251,259,262,281)

Line 244: Change “incidences” to “prevalences”

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 283)

Line 257: Cycloplegic refraction is the gold standard for determining refractive error in children. A critical limitation of the study was that the refraction was not conducted under cycloplegia. The results will overestimate the prevalence of myopia. This limitation should be indicated in the discussion section. Check the reference below:

Li L, Fu J, Chen W, Meng Z, Sun Y, Su H, Yao Y, Dai W. Difference of refractive status before and after cycloplegic refraction: the Lhasa childhood eye study. Japanese Journal of Ophthalmology. 2021 Jul; 65:526-36.

Reply: We have revised our text as advised and have added this section to the discussion.
Changes in the text:(see Page 2, Line 59; Page 5, Line 140; Page 12, Line 384-387)

Line 259: Change “detection rate” to “prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 252)

Line 261: Change “detection rate” to “prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 254)

Line 264: Change “detection rate” to “prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 257)

Line 269: Missing the reference to the study in Wuzhishan

Reply: We have added the Wuzhishan reference.

Changes in the text:(see Page 10, Line 310)

Line 270: Change “detection rates” to “prevalences”

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 259)

Lines 272-275: Must be re-written. The comparisons in each age group can be significant or not significant, the word obvious has no statistical meaning.

Reply: We have rewritten this section.

Changes in the text:(see Page 10, Line 317-320)

Line 288: Change “detection rates” to “prevalences”

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 272)

Lines 270-272: Consider citing other studies with significant trend toward myopia with age.

Reply: We have revised our text as advised.

Changes in the text:(see Page 10, Line 317-320)

Lines 281 - 286: Consider rewriting this section to make it more clear

Reply: We have rewritten this section.

Changes in the text:(see Page 10-11, Line 326-342)

Line 288: Consider citing other studies where myopia was more prevalent among females, such as:

He MG, Huang WY, Zheng YF, Huang L, Ellwein LB. Refractive error and visual impairment in school children in rural Southern China. *Ophthalmology* 2007;114(2):374-382.

Zhao J, Pan X, Sui R, Munoz SR, Sperduto RD, Ellwein LB. Refractive error study in children: results from Shunyi district, China. *Am J Ophthalmol* 2000;129(4):427-435

Villarreal GM, Ohlsson J, Cavazos H, Abrahamsson M, Mohamed JH. Prevalence of myopia among 12- to 13-year-old schoolchildren in northern Mexico. *Optom Vis Sci* 2003;80(5):369-373.

Dandona R, Dandona L, Srinivas M, Sahare P, Narsaiah S, Muñoz SR, Pokharel GP, Ellwein LB. Refractive error in children in a rural population in India. *Invest Ophthalmol Vis Sci* 2002;43(3):615-622.

Kleinstejn RN, Jones LA, Hullett S, Kwon S, Lee RJ, Friedman NE, Manny RE, Mutti DO, Yu JA, Zadnik K, Collaborative Longitudinal Evaluation of Ethnicity and Refractive Error Study Group. Refractive error and ethnicity in children. *Arch Ophthalmol* 2003;121(8):1141-1147.

Rudnicka AR, Kapetanakis VV, Wathern AK, Logan NS, Gilmartin B, Whincup PH, Cook DG, Owen CG. Global variations and time trends in the prevalence of childhood myopia, a systematic review and quantitative meta-analysis: implications for aetiology and early prevention. *Br J Ophthalmol* 2016;100(7):882-890.

Santiago HC, Rullán M, Ortiz K, Rivera A, Nieves M, Piña J, Torres Z, Mercado Y. Prevalence of refractive errors in children of Puerto Rico. *Int J Ophthalmol* 2023; 16(3):434-441

Reply: We have added a discussion on myopia prevalence in female.

Changes in the text:(see Page 10, Line 347-350)

Line 290: What is the evidence that hormone levels are related to higher levels of myopia in females? Cite references, if any. If no evidence, delete it.

Reply: We have revised this part of the discussion and added references.

Changes in the text:(see Page 10, Line 344-347)

Line 291: Delete “genetic genes” and substitute with “genetics”

Reply: We have deleted this word.

Lines 291-292: Is there any evidence of greater gender discrimination in some areas of Hainan? Or is it speculative? Cite references.

Reply: We have deleted the discussion of gender discrimination.

Line 295: Change “detection rate” to “prevalence”

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 294-297)

Tables: I could not read all the columns of the tables; they must be resized. Include the 95% confidence interval for every prevalence percentage.

Reply: We have reformatted the table and added the 95%confidence intervals for every prevalence percentage.

Changes in the text:(see Page 12, Line 390-393)

Line 330: Move the first sentence to the results section.

Reply: We have revised our text as advised.

Changes in the text:(see Page 9, Line 294-297)

Line 332: Consider eliminating the sentence starting with “In addition...”.

Reply: We have revised our text as advised.

Line 334: What factors related to myopia will be studied in a future survey?

Reply: We have added a discussion of future survey of risk factors

Changes in the text:(see Page 12, Line 399-402)

Line 338: Delete incidence and use prevalence since this is a prevalence study

Reply: We have revised our text as advised.

Changes in the text:(see Page 10, 13, Line 323, 407)

Lines 373, 376,378, 382, 385, 388, 391, 395, 398, 401, 403, 406, 432, 436,437: Correct journal abbreviations

Reply: We have revised journal abbreviations.

Changes in the text:(see Page 14-17, Line 450-545)

Line 467: Change “detection rate” to “prevalence”

Reply: Reply: We have revised our text as advised.

Changes in the text:(see Page 11, Line 359, 360)

Reviewer C

1. Table 5, 7, 9:

It's needed to present three groups of different age in Table 5, two groups of different gender in Table 7 and two groups of different area in Table 9.

Table 5 Differences in prevalence of refractive error between Han and Li of different ages

Ethnic [↵]	Myopia [↵]			Astigmatism [↵]			Poor Vision [↵]		
	n [↵]	percent [↵]	95%CI [↵]	n [↵]	percent [↵]	95%CI [↵]	n [↵]	percent [↵]	95%CI [↵]
Han [↵]	35 [↵]	11.1 [↵]	(7.6-14.6) [↵]	98 [↵]	31.1 [↵]	(26.0-36.3) [↵]	79 [↵]	25.1 [↵]	(20.3-29.9) ^{↵↵}
Li [↵]	30 [↵]	3.4 [↵]	(2.2-4.6) [↵]	168 [↵]	19.1 [↵]	(16.5-21.7) [↵]	171 [↵]	19.4 [↵]	(16.8-22.0) ^{↵↵}
χ^2 [↵]	26.809 [↵]	↵	↵	19.455 [↵]	↵	↵	4.511 [↵]	↵	↵ ↵
P [↵]	<0.001 [↵]	↵	↵	<0.001 [↵]	↵	↵	<0.05 [↵]	↵	↵ ↵
Han [↵]	153 [↵]	32.6 [↵]	(28.3-36.8) [↵]	470 [↵]	33.4 [↵]	(29.1-37.7) [↵]	193 [↵]	41.1 [↵]	(36.6-45.5) ^{↵↵}
Li [↵]	165 [↵]	16.6 [↵]	(14.3-18.9) [↵]	996 [↵]	15.3 [↵]	(13.0-17.5) [↵]	231 [↵]	23.2 [↵]	(29.7-36.7) ^{↵↵}
χ^2 [↵]	48.045 [↵]	↵	↵	63.187 [↵]	↵	↵	49.609 [↵]	↵	↵ ↵
P [↵]	<0.001 [↵]	↵	↵	<0.001 [↵]	↵	↵	<0.001 [↵]	↵	↵ ↵

Reply 8: Thank you for your suggestion. We have made revisions.