Reviewer’s report


Version: 0 Date: 31 Aug 2019

Reviewer: Helmi Ben Saad

Reviewer's report:

The paper entitled "Validation of the Global Lung Initiative 2012 Multi-Ethnic spirometric reference equations in healthy urban Zimbabwean 7-13-year-old school children: a cross sectional observational study" is very interesting. However, some changes are needed in order to improve its quality.

1. General remarks

Avoid, over all the paper, the active voice and the use of the first person. Apply for the passive voice
Be careful for abbreviations. Replace FEF25-75 by MMEF (maximal-mid expiratory flow).
In the abstract and in the main manuscript: Replace reference values, reference equations by SRE (for spirometric reference equation(s)). In other words, homogenize your terms and avoid elegant variation of terms.

Over all the paper, replace "restriction" by "tendency through restriction". In fact, the diagnosis of a restrictive ventilatory defect is based on a TLC < LLN (ATS/ERS-2005). The combination of a FEV1/FVC < LLN and a FVC < LLN oriented towards a tendency through a restrictive defect. Avoid redundancy between text and tables (results section).

2. Title

In order to shorten the abstract, authors are asked to introduce in the title three abbreviations (ERS, GLI2012 and SRE); The new title will be:


3. Abstract

Background. Change as: The ERS/GLI2012 provide multi-ethnic SRE for the 3-95-year-old age range, but Sub-Saharan African populations are not represented. This study aimed to evaluate the fit of the ERS/GLI2012 ERS to a population of healthy urban Zimbabwean school children (7-13 years).
Methods: Authors are asked to write a clear hypothesis in the method section. See the abstract of your reference N°11 and the abstract of the following African study: Ketfi A, et al. The multi-ethnic global lung initiative 2012 (GLI-2012) norms reflect contemporary adult's Algerian spirometry. PLoS One. 2018 Sep 4;13(9):e0203023. For example, state that: If the average Z-score deviated by "&lt; ± 0.5"
from the overall mean, the ERS/GLI2012 norms would be considered as reflective of contemporary Zimbabwean children spirometry.

Methods. The following sentence (L37-42) is a source of confusion: "We also compared the percent predicted values between the ERS/GLI2012 and Polgar reference values (which are in current clinical use in Zimbabwe)." Why? Because in your main manuscript (P14L14-17) you stated that "Most physicians in Zimbabwe use the Polgar reference values for diagnosis of lung disease, which were developed from Caucasian male workers in coal mines and steel industries in the 1970s." You insist on the term "male"? What about female, which SRE are applied in Zimbabwe? Please clarify or correct Results. L45 to 48, change as "The validation dataset contained acceptable spirometry data from 712 participants (344 girls, mean age :10.5 years (SD 1.81)).

Conclusion. Avoid the active voice, avoid the term 'restricted'…

4. Keywords
Use key words, not cited neither in the title nor in the abstract…

5. Introduction
P6L10-12: add references after the following sentence: "Studies validating the ERS/GLI2012 reference equations have made varying conclusions, with some indicating a poor fit for local populations."

6. Methods
P7L4-7: add an adequate reference for the following sentence "living at least three days per week with people smoking cigarettes"
P7L35-40: the reference (ref 26) to argue the section related to spirometry is WRONG. Authors stated "ATS/ERS guidelines" and argues by a reference 26 related to how to write a spirometry report. The good reference is your reference number 28 (Miller. ERJ 2005). The same remark is valid for the sentence P7L53-55 (Participants …analysis"

P7L52-57: the FVC and FEV1 reproducibility criteria should be reviewed. According to the ERS/ATS (ref 27): the between-maneuver evaluation criteria are: an adequate test requires a minimum of three acceptable FVC maneuvers. Acceptable repeatability is achieved when the difference between the largest and the next largest FVC is ≤0.150 L and the difference between the largest and next largest FEV1 is ≤ 0.150 L. For those with an FVC of ≤1.0 L, both these values are 0.100 L." Moreover, the ATS/ERS stated that "The largest FVC and the largest FEV1 (BTPS) should be recorded after examining the data from all of the usable curves, even if they do not come from the same curve." Please correct/clarify
P8L4-7. Can authors add an adequate reference to argue their sentence "All volume-time curves were first checked by the diagnostic software, assessing the longevity of the exhalation phase (≥ 6 seconds in ≥ 9 year-olds and ≥ 3 seconds in < 9 year-olds)." I recommend the lecture of the following recent Letter to Editor: "Saad HB. Encouraging the publication of spirometric norms in healthy children from Africa. Int J Tuberc Lung Dis. 2019 Jun 1;23(6):764-765." The issue related the expiratory time was discussed.
P8L42: replace FEF25-75 by MMEF and define it.
P8L47: delete the following sentence "in the form log(Y) = a + blog(height) + clog(age) + dEthn + spline factor + error"
P9L26: SES was previously used P6L19. So P6L19 add SES after socioeconomic status.
7. Results
P10L21: delete the following sentence "Mean height (centimetres) for girls was 139.6 (115.1-168.4) and for boys was 140.2 (116.4-166.4) and mean weight (kilograms) was 33.9 (19.5-56.1) for girls and 34.8 (18.7-59.7) for boys"
P15L21-23: replace by "Boys had higher mean height and BMI for-age z-scores"
P10L32: replace as "After performing a Shapiro Wilk test, the FEV1/FVC (for both sexes) and MMEF (for boys) z-scores……"
P10L34: it is unusual to write reference in the Results section
P11L14-19: replace as "among" by "of" as previously done.
P11L40: (Figures 3 a, c, e),

8. Figure 1
Define all applied abbreviations (BMI, ATS/ERS…)
14 participants had outlying values? What is an outlying value? Define it in the method section? Use "pupils" rather than "students"?

9. Figure 2
Define all applied abbreviations (BMI, ATS/ERS…)
Replace FEF25-75 by MMEF

10. Figure 3
Define all applied abbreviations (BMI, ATS/ERS…)
Replace FEF25-75 by MMEF

11. Figure 4
Define all applied abbreviations (BMI, ATS/ERS…)
Replace FEF25-75 by MMEF

12. Table 1
Define all applied abbreviations
Use boys/girls rather than males/females.

13. Table 2
Define all applied abbreviations

14. Table 3
Define all applied abbreviations

15. Discussion
P12L58: SDs
P14L22: replace "more than 74,000" by "74,117".
P14L27 and P15L34: add a comma before "respectively"
Study limitation: what about FEF25, FEF50 and FEF75?

16. References
Please homogenize all references
Ref 4. Journal name?
Ref 5. Verify the journal name.
Ref 10. Journal name? website?
Ref 12. Respir Care
Ref 32. Journal name?
Ref 36: delete "1,2" at the end of the title.
Ref 43. Plos One
Ref 5, 7, 18, 19, 26, 34, 36, 37,43, 46, 47. Avoid capital letters in the title

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.

Yes

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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