PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Correlation of skin folds thickness and validation of prediction equations using DEXA as gold standard for estimation of body fat composition in Pakistani children
AUTHORS	Zaman, Maseeh uz; Hussain, Zainab; Jafar, Tazeen; Parveen, Riffat; Saeed, Farzan

VERSION 1 - REVIEW

REVIEWER	Prof Pujitha Wickramasinghe Department of Paediatrics, University of Colombo, Sri Lanka
REVIEW RETURNED	28-Oct-2013

GENERAL COMMENTS	Authors need to elaborate more with references about the different statistical analysis such as accuracy, bias etc. And how authors determined that slaughter equation is the best. Explanation is not clear. it is not clear what skin fold thicknesses were measured. include the 3 equations that were used, eg there are few number of Slaughter equations and got to know which one was used exactly. Reference 18 has used Hydrometry (isotope dilution) and not Hydrodensitometry Figure: How x axis is being calculated is not clear. Also could include the association between bias and measured component Need minor language revisions to make it easy to comprehend page 9 line Line 32 , need to change word 'measurement' to may be 'assessment'

REVIEWER	Szu-Yun Leu University of California, Irvine U.S.A.
REVIEW RETURNED	23-Dec-2013

GENERAL COMMENTS	2. Need modification after proper analysis is done. 4. The equations being evaluated are not clearly identified. The authors should provide the actual equations used for the manuscript since multiple formula appeared in original papers (ref. 11-13). The authors should also provide more information regarding the 3

papers/formula.

7. "Accuracy" as described on page 8 is not appropriate for paired measurements.
Intra-class correlation is not appropriate for paired measurements.
To evaluate accuracy/agreement, both difference/bias and variation/precision should be considered.
Please consult with a statistician to reevaluate which measurements should be used to validate these equations.
Why was the power analysis based on a linear regression analysis which was not used for the study?

8. The references in the introduction section do not support the contents. The authors seem to provide inaccurate references. More references may need to support the study objective.

9. Need modification after proper analysis is done.

10. The introduction section cites references inaccurately. The 3 papers/equations being evaluated are only referred not properly introduced or clearly specified. The analyses are not accurately used/described. The values in the results section are inconsistent with Tables.

11. Need modification after proper analysis is done.

12. Mentioned but not specifically discussed. The discussion section may need to be reorganized.

Yes and I have performed this review

REVIEWER	Claudia Pedroza University of Texas Health Science Center at Houston, USA
REVIEW RETURNED	13-Jan-2014

| GENERAL COMMENTS | General: The authors are trying to validate previously published prediction equations of Fat Mass and Body Fat using skin folds measurements. The population under investigation is different than the one used for developing the prediction equations. The current research is important since these equations are widely used and thus validation should be carried out. However, there are some issues/comments that the authors may wish to address:

1. Can you provide the prediction equations that are being validated?
2. On p. 6, the description of the sample size calculation refers to a detection of change in slope. However, it is unclear what slope the authors are referring to. It would help to clarify this point.
3. On p.8, it says two readings were taken for height, weight, etc. Which measurement was used in analyses?
4. On p. 9 line 6, it is stated that accuracy is defined as percentage of the mean of the prediction equation. Shouldn't this be as percentage of the value from DEXA?
5. To validate the various prediction equations, correlations were calculated between the predicted and estimated FM and %BF. Why not carry out a regression analysis of the predicted and measured |

	FM and %BF and check for line of identity, i.e. intercept=0 and slope=1? 6. Could you provide a scatter plot of the measured FM and predicted FM?

VERSION 1 – AUTHOR RESPONSE

Reviewer Name Szu-Yun Leu
Institution and Country University of California, Irvine
U.S.A.
Please state any competing interests or state 'None declared': None declared

Is the abstract accurate, balanced and complete? Need modification after proper analysis is done.

Changes have been made to the abstract and manuscript

Are the methods described sufficiently to allow the study to be repeated? The equations being evaluated are not clearly identified. The authors should provide the actual equations used for the manuscript since multiple formula appeared in original papers (ref. 11-13). The authors should also provide more information regarding the 3 papers/formula.

The equations have been provided in the materials and methods section. Explanations about them are further mentioned in the discussion part which has also been rewritten.

If statistics are used are they appropriate and described fully? "Accuracy" as described on page 8 is not appropriate for paired measurements.
Intra-class correlation is not appropriate for paired measurements.
To evaluate accuracy/agreement, both difference/bias and variation/precision should be considered. Please consult with a statistician to reevaluate which measurements should be used to validate these equations.

The accuracy as defined in the results is pertaining to the closeness of predicted value to the estimated value. Bias and agreement have been calculated using the Bland Altman analysis and Variation has been calculated using the paired samples T test. Intraclass correlations have been removed from the study.

Why was the power analysis based on a linear regression analysis which was not used for the study?

A regression analysis was included in the study to identify predictors for developing our own equation regarding percentage body fat and fat mass on half the sample and cross validating it on the other half. However post hoc analysis did not reveal the equation we derived as robust enough possibly due to the small sample size. Therefore this was not reported and is mentioned as a limitation of the study.

Do the results address the research question or objective? The references in the introduction section do not support the contents. The authors seem to provide inaccurate references. More references may need to support the study objective.

Please review the changes made in bold to the manuscript.

Do the results address the research question or objective? Need modification after proper analysis is

done.

The reanalysis does not change the results and according to our understanding the results are answering the objectives especially after the reanalysis

Are they presented clearly? The introduction section cites references inaccurately. The 3 papers/equations being evaluated are only referred not properly introduced or clearly specified. The analyses are not accurately used/described. The values in the results section are inconsistent with Tables.
Please review the changes

Are the discussion and conclusions justified by the results? Need modification after proper analysis is done.

The discussion and conclusion have been rewritten again.

Are the study limitations discussed adequately? Mentioned but not specifically discussed. The discussion section may need to be reorganized.

Limitations and future recommendations have been further added and discussion rewritten

Graph A (DZ-FM)

Graph B (G-FM)

Graph C (SL-%BF)

Scatter plots

VERSION 2 – REVIEW

REVIEWER	Claudia Pedroza UTHealth at Houston USA
REVIEW RETURNED	

GENERAL COMMENTS	Yes and I have performed this review