Reviewer’s report

Title: Development of waist circumference percentiles for Japanese children and an examination of their screening utility for childhood metabolic syndrome - a population-based cross-sectional study

Version: 1 Date: 27 August 2015

Reviewer: Kee Chee Cheong

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The study aimed at developing waist circumference (WC) and waist-to-height ratio (WC/Ht) percentile for Japanese children and to assess its utility in identifying childhood metabolic syndrome.

Major Compulsory Revisions

1. The validity of using the WC and WC/Ht percentile curves based on data collected in 2012-2012 from children aged 4.5-12.75 years to identify Metabolic syndrome among the obese children aged 6-12 years olds who visited paediatric outpatients department in 2005-2007. In addition, the percentile curves were generated based data from non-nationally representative sample (as authors had mentioned in page 10, line 10).

2. The validity (such as sensitivity and specificity) of using cut-off point >90th, >95th or >97th value from the newly developed WC percentile curves in identifying obesity among Japanese children is unknown since these cut-offs were not cross-checked with other indicators such as BMI and VAT. (page 9, line15-19)

3. ROC curve analysis should be used in determining the optimal WC percentile value for predicting childhood MetS. (page 9, line15-19).

4. Previous studies did not find a significant influence of WC measurement site on the relationships with visceral adiposity and cardiometabolic risk factors. Therefore, the authors claimed that WC percentile from WC measured at the level of umbilicus was more useful than other measurement sites for screening childhood MetS is questionable (page 8, line 14-25).

5. Please consult statistician on the likelihood ratio #2 tests that were performed in this study. Few cells with expected frequency < 5 and observed frequency= 0 were noted in table 1 to 4. Therefore, the likelihood ratio #2 test may not be appropriate.

Minor Essential Revisions

1. What were the inclusion and exclusion criteria for data collection from children in Shizuoka prefecture? What is the total number of eligible children and response rate?

2. Is the equation correct? : POW was calculated as 100×(the measured weight -
normal weight)/normal weight)/normal weight (%).(page 5, line 24)

3. Error: To change the ‘table 1 and 2 ‘ to ‘figure 1 and 2’ (page 6, line 17).

4. For comparisons of WC and WC/Ht percentile curves between boys and girls (page 6, 19-24) please present the boys and girls percentile curve in one figure (to combine figure 1a and 1b, figure 2a and 2b).

5. In page 8, line 1: “In the group aged 10–12 years, 16 (11%) of the 140 boys and 3 (4.4%) of the 68 girls”, the figures did not tally with the figures showed in table 4.

6. Table 4 and 5, the girls’ column subheading should be ‘ WC/Ht percentile’, not ‘WC percentile’.

Discretionary Revisions
Results section is too lengthy. Please highlight the important points that authors would like to share with the readers.

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests