Author's response to reviews

Title: Prevalence of hypertension in overweight and obese children from a large school-based population in Shanghai, China

Authors:

Xi Lu (lucy-luxi@163.com)
Chang-Yi Guo (Cyguo@scdc.sh.cn)
Chun-Yan Luo (Cyluo@scdc.sh.cn)
Yue-Fang Zhou (yfzhou@scdc.sh.cn)
Fan Wu (fwu@scdc.sh.cn)

Version: 2 Date: 8 December 2012

Author's response to reviews: see over
Dear Editor,

Thanks so much for you giving us the opportunity to revise our manuscript, entitled “Prevalence of hypertension in overweight and obese children from a large school-based population in Shanghai, China” for publication in BMC-public health.

We were grateful to the reviewers for their insightful and constructive comments and have addressed all of their concerns with the additional analysis of the data and modifications/clarifications of the text according their suggestions. We believe that those changes have significantly strengthened our conclusions and hope you would agree that it is now suitable for publication in BMC-Public Health.

Thanks for your consideration.

Sincerely yours,

Xi Lu M.D.
Fan Wu M.D.
Corresponding authors
Shanghai Municipal Center for Disease Control and Prevention & Shanghai Institutes of Preventive Medicine
1380 W. Zhongshan Road
Shanghai 200336, China

Response to Reviewers’ comments

To Reviewer 1

*Question 1. The authors should describe baseline characteristics which are stratified by both BMI and WC.*

*Response:* We agree with the reviewer’s suggestion and revised the new Table1 (with combination of old Table 1-2) to describe baseline characteristics stratified by both BMI and WC.

To make an overall enrollment in Shanghai, we studied a large scale of children population covering 110 schools from every district in the city including 60 schools in 9 urban districts and 50 schools in 10 rural districts. As shown in Table 1, totally 78,114 children and adolescents were enrolled for the medical examination, among which 175 cases missing waist circumference data. The average age of the students was around 11 years old (range 7-20 years). Boys in both BMI and WC overweight/obese groups are significantly more than girls (BMI group: OW 16.4% vs.9.7%, OB 12.2% vs.6.6%; WC group: OW 13.0% vs.10.3%, OB 8.5% vs.6.5%). There are more children in urban districts with overweight/obese status than those in rural districts (BMI group: OW 14.6% vs.10.9%, OB 10.8% vs.7.4%; WC group: OW 13.2% vs.9.4%, OB 8.9% vs.5.5%). Table 1 also shows differences among groups stratified by BMI and WC for the main anthropometric values such as weight, height, SBP and DBP, which are significantly increased in OW and OB groups than normal group.
Question 2. Table 3, if possible the authors should describe adjusted ORs that they used for combination in table 4.

Response: The review has made a good point here. We described adjusted ORs of BMI and WC after adjusting for sex and age in the new Table2 (old Table 3).

Table 2 made a further analysis on the hypertension prevalence. Classified by BMI or WC, the prevalence of high SBP increased more greatly compared with that of DBP. The prevalence of high SBP, DBP and hypertension were all markedly higher among OW and OB children than NW group. The risk of high BP prevalence was 1.5-2.2 folds in OW and OB children than that in NW group. Odds ratios (ORs) for high SBP, DBP and BP were significantly greater in OW and OB children than NW group, and showed a trend increase correlating with obesity stages(all P <0.001). BMI and WC were statistically significant after adjusting age and sex.

Question 3. The authors did not use overweight children in table 4. Is there any reasons? Perhaps, in table 4, the authors can describe them in 3×3 table.

Response: We agree with the review on this point and described the interaction between BMI and WC in the new Table3 (old Table 4) and provided the adjusted OR and exact P value.

Table3 shows the interaction between different obese status of BMI and WC on the prevalence of high SBP, DBP and BP by the adjusted odds ratio (ORs) with 95% confidence intervals (95% CIs). Controlling for BMI, the adjusted ORs progressively increased with the increasing obese status classified by WC, and vice versa. According to the increasing OR with different combination of obese status of BMI and WC, we can find WC has a stronger influence on the hypertension. For example, when compared with students who were WC overweight, the OR of high BP became higher (1.91 for BMI NW vs. 2.64 for BMI OB, increase 38.2%), while when compared with those who were BMI overweight, the OR of high BP became greater higher with WC obese statues increasing (1.76 for WC NW vs. 2.66 for WC OB, increase 51.1%). Furthermore, the combination of BMI and WC obese shows substantially higher ORs compared with those for either BMI or WC obese alone, 4.66 for BMI OB* WC OB.

Question 4. In table 4, the authors only reported that risk ratios (is this odds ratios?) for high SBP and BP in single OB group in WC were much higher than single OB group in BMI. Did the authors statistically test it? Are there any exact p-values?

Response: We have shown this point in the Table3.

Question 5. In table 4, the authors did not show the interaction between BMI and WC. Is there any interaction?

Response: We have shown the interaction between BMI and WC in Table3.

Question 6. If both BMI and WC in the same model simultaneously, which parameter is remaining in this population? If there is no significant difference in this analysis, the authors should not comment obese defined by WC were much higher OR compared with obese defined by BMI.

Response: Thanks for the review’s comments on the variable selection in the logistic regression model. According to Table2, variable BMI and WC were statistically significant after adjusting age and sex.
Considering the interaction of BMI and WC, we further described the different combination of status of obese classified by BMI and WC in Table 3. We can find the WC has the positive effect controlling for BMI on the prevalence of high SBP, high DBP, and high BP, respectively. The adjusted ORs increased with the obese status classified by WC controlling the obese status classified by BMI.
To Reviewer 2

Comments: This is a good paper, which further proved the hypertension risk of overweight and obese school children with its large scale cross-sectional study. It could be an interested issue for researchers in this field. The data was sound and the interpretation is well. The strength of the paper is the big sample size so the conclusion is convincing. The weakness is the conclusion is too simple and without in-depth analysis and discussion on the stronger power of the hypertension risk of WC OB. They may do it if they collected questionnaires of the students.

Response: We appreciate the detailed comments in the text and we accepted all the suggested changes. In order to strengthen our analysis, we updated our tables in the new table 1-3. Especially in the new table 3, we added the description the interaction between BMI and WC in the new Table3 (old Table 4) and provided the adjusted OR and exact P value, which indicated the stronger correlation of hypertension risk of WC OB.

To the Additional editorial requirements

(1) Copyediting: We advise you to seek the assistance of a fluent English speaking colleague, or to have a professional editing service correct your language. Please ensure that particular attention is paid to the abstract.

Response: Thanks for the suggestion. We did some revision on our English writing.

(2) Please include a “Conclusion” section after “Discussion”.

Response: Thanks. We added a CONCLUSION section after our DISCUSSION.