Reviewer’s report

Title: Can Body Mass Index, Waist Circumference, Waist-hip ratio and Waist-Height Ratio Predict the Presence of Multiple Metabolic Risk Factors in Chinese Subjects?

Version: 2 Date: 8 December 2010

Reviewer: António Silva

Reviewer’s report:

Overall considerations

• Was the age considered when this study was designed?
• What was the maximum and minimum age?

• As you know after a certain age some cardiovascular risk factors rarely appear alone. The glucose intolerance is related to diabetes type II which is relate to obesity which in turn is related to hypertension. Normally, these conditions worsen with age. But these are things you know better than I do. My question arises because of the SD of the sample age means.

• Consider altering the title to “…Chinese adult subjects” or “…Chinese middle aged subjects”, etc

Abstract

• The author made some confusion regarding the waist circumference. I’ve said in the first review: “Once given the abbreviation of a term (waist circumference [WC]) it must be maintained until the end.” So try to do this way. It’s incoherent the other variables abbreviated and not this one. First time complete to identify the abbreviation and then WC. This is valid along all the document not only the abstract.

• Methods:
  o Change “There are” to “There were” or to “772 Chinese subjects participated in this study”.

o Change “according to the criteria from WHO” to “according to the criteria of WHO”.

• Results:

  o Rephrase “The appropriate cut-off values of BMI, waist circumference and WHtR to predict the presence of multiple metabolic risk factors were 22.85 and 23.30 kg/m2 in males and females, respectively. Those of waist circumference and WHtR were 91.3cm and 87.1cm, 0.51 and 0.53 in males and females, respectively.” to

  o “The appropriate cut-off values to predict the presence of multiple metabolic risk factors were, respectively for males and females, 22.85 and 23.30 kg/m2 for
BMI, 91.3cm and 87.1cm for WC and 0.51 and 0.53 for WHtR (respectively for males and females, [either way, before or after])

Methods
In first review I’ve posted:
The description is not detailed. In this epidemiological kind of studies, methodological description must be as detailed as possible in order to be easily replicated in other populations / studies. For example, what do you mean "in duplicate after 5 min of rest”? Were the subjects working? Were they doing exercise?
The author answered:
… means that before measurement of blood pressure, subjects are required to be seated for about 5 minutes in order to obtain the accurate blood pressure…
I suggest including it in methods and if you could have it supported by a reference
• After saying “The blood samples were taken from the vein” please place a dot in the end of phrase.
• Change “P values of less than 0.05 were considered to indicate statistical significance.” to “the level of significance was set at P<0.05”
• Place the “2” of the qui-square test up script
• Change “Receiver operating curve (ROC) analyses were used to determine the appropriate values for four indicators according to male and female” to “Receiver operating curve (ROC) analysis were used to determine the appropriate values for the four indicators according to sex.”

Results (major review on the english)
Instead of writing significantly between parenthesis just write (P<0.05). Once it’s described in methods it simplifies and is generally accepted and understandable.
• Change “Characteristics of the study population are shown in Table 1” to “Sample characteristics are presented in Table 1”.
• Change “There were 360 males and 412 females in this study” to “360 males and 412 females participated in this study.”

1st paragraph, 3rd line
• Replace greater by higher

1st paragraph, 4th line
• Replace smaller by lower

2nd paragraph, 3rd line
• Instead of “Elevated BMI” I suggest “High values of BMI”
• Replace between parenthesis by (P<0.05)
3rd paragraph, 1st line
• Grammar error. Write “Figures 1 an 2 show”
3rd paragraph, 4th line
• Replace “greater” by “higher”
• Replace “according to the increase in the numbers of…” by “according to the increasing numbers of…”
4th paragraph,
• Erase the parenthesis when pointing the values and the correspondent variable (…of 23.00kg/m2 for BMI,…)
• Authors should maintain the test structure. In line 13 the presentation of the results is simpler to read than in the lines above and after. It makes it hard to fix and reading boring. They should present all results in similar sentences as the one I’ve mentioned. Although my suggestion is to present it in a table.

Discussion
Don’t forget to up script the 2 (square, eg. 23.00kg/m2)
• Authors start the discussion with “the present study suggested”. This sentence is acceptable in conclusions not in discussion. Rephrase please.

2nd paragraph, 7th line
• Grammar error. Replace “values has been widely” by “values have been widely”

2nd paragraph, 6th line
• Grammar error. Replace “because they are correlated with abdominal fat mass and are more associated with cardiovascular…” by “because they correlated with abdominal fat mass and were more associated with cardiovascular…”

3rd paragraph, 2nd line
• Change “cutoff value of” to “cutoff value for”

3rd paragraph, 3rd line
Authors wrote:
• “A study indicated the optimal cutoff points for BMI with regard to the presence of at least 2 metabolic risk factors were lowest in East Asians (24kg/m2) and suggested uniform anthropometric cutoff values for all Asian ethnic groups are not appropriate to assess obesity-related metabolic complications [23].”
• This sentence needs revision:
  1. “… indicated that the optimal cutoff points for BMI regarding to the presence of at least 2 metabolic risk factors were the lowest in East Asians (24kg/m2) and suggested that uniform anthropometric cutoff values for all Asian ethnic groups might not be appropriate to assess obesity-related metabolic complications [23].”
  2. The study of Wang et al. [23] indicated the optimal cutoff points for BMI
regarding to the presence of at least 2 metabolic risk factors as the lowest in East Asians (24kg/m2) and suggested that uniform anthropometric cutoff values for all Asian ethnic groups might not be appropriate to assess obesity-related metabolic complications.”

Either way in order to make sense.

3rd paragraph, last line and last sentence
Authors wrote:
• “The result of this study was similar with that.”

My suggestion:
• Thus, the appropriate BMI cut-off values to detect the presence of multiple metabolic risk factors in Chinese population may be lower than 25 kg/m2 as stated also in our study with 22.85 kg/m2 and 23.30 kg/m2 for males and females, respectively

5th paragraph, 5th line
• Where is the reference? If is the number 33 it should appear in the beginning of the sentence and not in the end of the second sentence.

5th paragraph, 18th line
• Change “the reason may be the sample of this study can not representative of the adult…” to “the reason might be related to the present study sample size and/or its representativeness of China adult population.”
• Yet in the followed sentence “It is possible that similar analyses undertaken in a representative sample would yield different estimates.” change to “It is possible that similar analysis undertaken in a representative sample would yield different outcomes”

6th paragraph, 1st line
• Change “Takahashi et al [34] demonstrated that combining of both waist circumference and BMI was superior to using only one of these parameters” to “Takahashi et al [34] demonstrated that the combination of both WC and BMI was superior than using only one of these parameters.”
• In the next sentence “Wang et al [23]” don’t forget the reference number

Conclusions
In the conclusions authors report to association but in the results they pointed relationships. As I’m not an expert in ROC analyses I really don’t know but if those relations outcome from the #2 test they should be mentioned as associated.
• Change “by lifestyle modification” to “by modifying lifestyle”
I really don’t understand the last sentence. What’s the problem of the studied population? Its nature? What about it? And if the sample isn’t big enough for having other results it’s too much big to promote such habits?
Figures 1 and 2
Try to change the scale and we will be able to better look the differences between each other. Values are very close to each other so have a try please.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

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