Author's response to reviews

Title: Association of dietary pattern and body weight with blood pressure in Jiangsu Province, China

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Author's response to reviews: see over
Reviewer's report

Title: Association of dietary pattern and body weight with blood pressure in Jiangsu Province, China

Version: 1  Date: 28 March 2014

Reviewer: Jean Woo

Reviewer's report:

Major revisions:
Please carry out analysis as follows:
Calculate Odds ratio adjusting for confounding factors using BP as dependent variable;

Odds ratios (OR) can provide a good approximation to prevalence ratios (PR) in cross-sectional studies when the underlying outcome is rare. However, the OR overestimates the PR when the outcome of interest is common (larger than 10%). Because cross sectional studies are not used for rare exposures or conditions, OR will generally be very discrepant from PR (Lee et al, Br J Ind Med, 1993). Furthermore, the OR usually overestimates the relationship between exposure and disease (Barros et al. BMC Med Res Methodol, 2003. Thompson et al. Occup Enviro Med, 1998). In our study, the prevalence of high blood pressure was more than 10%, therefore, we used PR rather than OR.

Please address the research question of what is the highest attributable fraction for hypertension (body weight or dietary pattern): this provides important information for public health.

Our main objective was to investigate the relationship between dietary pattern and high blood pressure. However, it is known that body weight is importantly related to high blood pressure, and therefore we could not ignore it and have included body weight as an important adjustment factor. With our analysis, we aim to present a prospect on the “traditional pattern”. From a scientific perspective, the “traditional” patterns has healthier food components. However, in our study, we found a positive relationship between the “traditional” pattern and high blood pressure, which suggested that traditional cooking habits may play a role despite the otherwise healthy components of the pattern. Healthier cooking methods would
Minor essential revisions:

Introduction line 51: The increase in the prevalence of hypertension cannot be solely attributed to dietary pattern: changes in physical activity and perhaps excessive calorie intake (and increasing obesity and hence increasing BMI likely account for much of the change, since salt intake is a major contributor, and is known to be higher in the traditional Chinese diet compared with Western diets. Any shift towards a more Western diet is likely to reduce salt intake and BP prevalence would be expected to fall.

Although this may be partly true, the shift towards a more Western diet may also be accompanied by increasing BMI, hence ‘neutralizing’ the favorable salt intake reduction. In our study, we have adjusted for BMI in the models analyzing the relationship between dietary patterns and high blood pressure.

Methods line 115-120. This method of assessing salt intake is problematic and only takes into account added salt. What about sodium already in foods? 24 h urine sodium excretion will provide a more accurate representation of sodium intake. For example among Chinese in Hong Kong, the major food contributors to 24h urine sodium is soup and dim sum, the two combined contributing to about 30% of the 24h urine sodium value.

Sodium in the diet usually comes from salt added during cooking and from sauces in the mainland of China (Brown et al. Int J Epi, 2009), which is different with that in Hong Kong. In our study, we used dietary weighing in combination with a 3-day 24-h recall in the study which provided a relatively accurate estimation of salt intake. Our study showed 11.4 gram per day of salt intake in Jiangsu population, an eastern city of China, which closely matches with the average salt intake of 12 gram per day from the 2002 National Nutrition and Health Survey.

137.... dietary patterns. Reference should be made to other publications of dietary patterns among Chinese populations and a comparison of the findings discussed in this light in the Discussion section:
Chan et al Journal of the American College of Nutrition 2013 in press
Cheung et al Advances in Food and Nutrition Research 2014;71:137-63

The four dietary patterns have been developed by Shi et al, based on the 2002
Nutritional Survey in Jiangsu. An article has been published before on relationship between dietary patterns and anemia using similar dietary patterns (Shi et al. Br J Nutr, 2006). In our study, we used the same patterns to analyze the association with blood pressure.

Discussion 231-6: Westernized pattern of diet is associated with coronary heart disease: so a shift from traditional to Western diet also may have adverse effects.

We found that a westernized dietary pattern showed a negative association with high blood pressure, which does not mean that we recommend this kind of pattern. As we explained in the discussion part, it may be that the nutrition and epidemiologic transition at the time of the study (the year of 2002) had only just begun in Jiangsu Province thereby not yet showing an association between exposure and disease outcomes. Analysis of follow up data will throw more light on this.

237-248. All dietary methods are likely to underestimate sodium intake. Urine sodium should be used as the gold standard.

Each dietary method has its advantage and disadvantage. Although the urine sodium is a golden measurement for estimation of sodium intake, using a single 24 hour urine collection to quantify habitual intake is a weak method because of day-to-day variation (Dyer et al. BMJ, 1996.). It is also not easy to collect 24 hour urine in big population samples. Other dietary survey methods such as food weighing, 24-h dietary recall or food frequency questionnaire have been applied in many studies for measurement of sodium intake (Brown et al. Int J Epi, 2009). We have added some words on the limitations in the discussion part. Please see page 12 lines 247-250.

251: counter-intuitive, not contra-intuitive. This statement is problematic: salt intake is well known to be high in China because of the traditional diet: please refer to the Intersalt series of publications (Stamler et al).

Since traditional Asian diets can widely vary, it is not self-evident that a traditional diet is related to high blood pressure. For example, Wang et al.[10] found that a typical traditional southern Chinese dietary pattern, characterized by high intakes of fruit, pork, poultry, rice, vegetables, aquatic products and nuts, was inversely related with hypertension independent of BMI. In this particular section we explain
that the “traditional” pattern has healthy components, but apparently this is counterbalanced by the large amount of salt used in food preparation.

256: discussion regarding vegetarian diet. Chinese vegetarian diet is not the same as Western Vegetarian diet, since it is predominantly based on soy products, which is tasteless. Therefore the sodium intake of Chinese vegetarians is high, affecting their BP and bone. Further more, vegetables tend to be stir fired, so that fat intake increases with vegetables intake, a finding contrary to Western populations. Please include these comments:

Author search: Woo J; Kwok T; Sea M; key words vegetarians,

We have added some sentences on the high sodium content of Chinese vegetarian diets, based on Kwok’s research. Please see page 13 lines 262-265 in the discussion part.

line 296-308: please refer to studies carried out among the Hong Kong Chinese population for comparison.

We could unfortunately not find the studies the reviewer is referring to on sweet food and hypertension among the population of Hong Kong.

line 317: limitations. Please highlight the problem with estimation of salt intake method. Refer to other studies examining dietary pattern and BP

We have addressed this issue. Please see the last sentence of the discussion part.

Level of interest: limited
Quality of English: Adequate
Statistical review: not necessary
Declaration of competing interest: None
What next? Depends on authors response to comments
Reviewer's report

Title: Association of dietary pattern and body weight with blood pressure in Jiangsu Province, China

Version: 1  Date: 10 March 2014  Reviewer: Lilia Castillo-Martinez

Reviewer's report:

Major revisions
In Table 1 the percentage should be calculated as n=1845 and n=673 been the 100% for example male 831 (45%) and 1014 (59.9), etc.

We have re-calculated the percentages according to your comments. Please see Table 1.

The model 2 presented in Table 2 is adjusted by gender but this variable was not statistically significant in Table 1 justify why you included also SES and potassium intake in model 3

These variables are known confounding factors, or risk factors. Therefore, we adjusted for these factors whatever significant or not.

Almost all the variables presented in Table 4, are not normally distributed so is better to present them as median and interquartilr range and be compared with a no-parametric test.

Due to the large sample size, our data approached normal distributions sufficiently to allow presentation as means and standard deviations, and parametric testing.

Minor revisions
Line 97 about written consent is repeated in line 103

We have deleted the first sentence on written consent.

Level of interest: An article of importance in its field 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