Reviewer's report

Title: Ethnic differences in the association between blood pressure components and chronic kidney disease in middle-aged and older Asian adults

Version: 2 Date: 24 March 2013

Reviewer: Gemma Browne

Reviewer's report:

Reviewer 2
Re Appraisal
Relevance

"This is an interesting and relevant use of 3 separate but similar cross sectional studies including estimates of eGFR and Hypertension which has been measured in a standardised way across the 3 studies. This continues to be an interesting and publishable paper."

Study Title
Title has been changed and reflects the population studied

Methods of Measurement of Exposure

I am happy with the addition of income as a measure of socio-economic status and has shown similar associations with education as a binary variable.

Minor Revision

However I would suggest including income < 1000 (SGD) as an exposure variable in the methods on page 7 under Definition of other variables and mention as whether this is a self reported variable.

Based on earlier review, "From a confounding variable perspective in Singapore, is there a difference in Socio economic status across the 3 ethnic groups that might also explain less well treated blood pressure and more obesity and hypertension, there is a profound difference in Malays in the proportion receiving anti hypertensive medication so we could assume perhaps that they also are less likely to receive ACEi or ARB, this lesser availability of antihypertensives consequent of whatever reason may explain the findings irrespective of the ethnicity.

This has been addressed by including in the text these specific differences across the 3 ethnic groups

Major Revision to add to Limitations in Discussion

"As microalbuminuria is an important additional outcome measurement both in
respect to estimates of CKD and potential consequences of hypertension and Diabetes, the absence of this measurement is a limitation of the study."

This has been addressed by mentioning in the Discussion the limitations without measurement of albuminuria.

Methods of measurement of Outcome

All creatinine measurements are calibrated appropriately and the use of the CKD Epi formula in this population is also correct in the presence of a normal population. The authors have confirmed validation of the serum creatinine measurements and validation of the CKD EPI formula when compared to MDRD in this population.

Major Revision how Odds Ratios across the different ethnic groups are demonstrated and explained

"To assist the reader in understanding any potential explanations for differences in the odds ratios across the ethnic groups a figure showing the difference in distribution of the blood pressures across the 3 ethnic groups might be a helpful summary of the data, with this additional figure the question as whether the average blood pressures are different in the 3 groups. I note that when looking at the quartiles of systolic and diastolic BPs, the selected study related quartiles measured seem to higher in one ethnic minority over the other 2, this results in some difficulty in comparing the resulting odds ratios across the 3 groups and perhaps the highest quartile needs to be set at a higher blood pressure level across all three groups to allow the same description of blood pressure. Regarding the reporting of results, do the odds ratios mean the same thing if the Hypertension is much higher and more prevalent in one group than the other 2. You could consider using a fractional polynomials spline curve to allow a demonstration of the rate of change of OR using separate curves for different ethnic groups. It is important to discuss in the discussion how the baseline parameters of Blood pressure and education differ particularly in one ethnic group and this will influence the associations with CKD."

The authors have addressed the above comments by including an additional Table comparing all the Odds ratios and the differences in the multi variable model.

They have also explained that Ethnic specific Cut offs for the Quartiles of Hypertension and I think this is helpful. They have also used Figure 1A and B

Minor Change

Figure 1A and B does not seem to have a legend although is referenced in the text

Minor Revision Change

See Discussion Paragraph 4

"While few cross sectional studies conducted among Chinese,20 and Japanese21;41 adults have reported no significant association between systolic
BP and CKD, few studies have shown a strong association between systolic BP and ESRD. This sentence may need to be revised as it sounds a little contradictory and it is not clear what the message of the sentence is."

This sentence has now been revised and is now more readable.

Minor Revision. "As large sample size beware of just calling odds ratio statistically but need to look at strength of association depends on Ethnic group. As using three different tables, there may need to be an additional figure to summarise the important odds ratios including the 3 ethnic group including the full multivariate models 1 and 2."

This has been addressed by adding in Table 5.

In summary

Only minimal revisions are now required from my perspective.

1. Introduction Line 4 Page 3 Change to either Hypertension has been shown to be an important risk factor for CKD.... or Hypertension is an important risk factor for CKD.

2. Be consistent with JNC-7 in text as on one occasion there is no Hyphen and another the -7 is omitted although correctly referenced as R25 I wonder as it is an abbreviation should its full meaning be included in the text when it is first mentioned on Page 6. Table 3 legend on page 9 it is just referred as JNC.

3. I would suggest including income < 1000 (SGD) as an exposure variable in the methods on page 7 under Definition of other variables and mention as whether this is a self reported variable.

4. Figure 1A and B does not seem to have a legend although is referenced in the text.

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'