Author's response to reviews

Title: Prevalence and trends of the diabetes epidemic in South Asia: a systematic review and meta-analysis

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

BMC Public Health Journal,

Dear Sir/Madam,

RE: Manuscript 5951011866597551 “Prevalence and trends of the diabetes epidemic in South Asia: a systematic review and meta-analysis”

Thank you for your letter and the opportunity for resubmission. The constructive feedback from the journal was invaluable and we are now submitting the revised manuscript.

We have attached our responses to your comments made on a point by point basis and have indicated explicitly the ways in which we have changed the manuscript in line with the reviewers comments. We have made necessary changes in the manuscript based on the suggestions.

Thank you for considering the paper for publication.

Yours Sincerely,

Dr. Ranil Jayawardena

Corresponding author
Editorial comments

1. Please include the email addresses of all authors in the title page. A title page should contain; Title, Author list, Affiliations (department names, institution name, street name, city, zip code, country), email addresses. The author list and email addresses must be identical in the manuscript file and on the submission system, and it must be clear which affiliation pertains to each author.

Author response: We have done the above changes suggested.

2. The figure file should not include the title (e.g. Figure 1... etc.) or the figure number. The legend and title should be part of the manuscript file, given after the reference list. Please ensure that the order in which your figures are cited is the same as the order in which they are provided. Every figure must be cited in the text, using Arabic numerals. Please do not use ranges when listing figures. For more information, see the instructions for authors: http://www.biomedcentral.com/info/ifora/figures.

Author response: Changes were done and new figure files were uploaded.

3. Please adhere to PRISMA guidelines when reporting Systematic Reviews (http://www.prisma-statement.org/).

Author response: The study was conducted with adherence to the PRISMA guidelines. We have stated this in the revised manuscript. Furthermore, Figure 1 represents the PRIMA flow diagram, and we are also able to provide the PRISMA checklist for the manuscript if editors feel it should also be uploaded.
Reviewer: Raghupathy Anchala (Version 1, March 2012)

A paper of exceptional quality

1. Sound methodology and valid discussion
2. Figures are self explanatory
3. Acceptable for publication

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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
Reviewer: Kaushik Pandit (Version 1, February 2012)

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

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

Major Compulsory Revisions

1. How to account for the changing definitions of diabetes and pre-diabetes has influenced the prevalence data, and that might have affected the secular trend?

Author response: This is indeed a limitation when comparing prevalence between countries and we have acknowledged this in the limitations section of the study. However, as we have discussed in methods section, for the purpose of describing prevalence data for the individual countries the studies that were most recent were included. Hence the variations in diagnostic criteria are likely to be minimal as we have excluded very old studies. In addition when evaluating secular trends (Figure 2) we have used studies that were on the same population and used the same diagnostic criteria. We have included this description in the discussion section, under limitations.

2. The large degree of difference shown in table 2 probably cannot merely be because of place of residence, as the neighbouring countries harbour populations which are largely similar in phenotypic, genotypic and lifestyle patterns. Hence the relevance of the table needs to be reworked.

Author response: We appreciate there is a considerable differences between countries. This may be largely due to heterogeneity used in defining area of residence (Urban and
Rural). Currently there is no unique criteria to divide area of residence in South Asian countries.

3. In page 14 detailed discussion on dietary pattern is beyond the purview of the article as that particular aspect has not been measured by the meta-analytical tools in the study.

Author response: We acknowledge that a detailed discussion on diet is beyond the purview of the present review. We wanted to highlight that diet may be an important factor contributing towards the observed high prevalence. However the discussion on diet as it is maybe too lengthy in the context of the present manuscript and hence we have considerably shortened it to only a single sentence.

Minor Essential Revisions

1. In some places the word Type II diabetes have been used, which however should be replaced with the standard WHO directive "Type 2 diabetes".

Author response: The suggested change was done.
Reviewer: Sutapa Agrawal (Version: 1, March 2012)

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics

Comments for the authors

1. The title of the paper suggests that the reader will become better informed about several areas - a) what is the prevalence for self reported diabetes; b) what is the prevalence for clinically diagnosed cases c) what are the modifiable and non modifiable risk factors d) which risk factor is more dominant in various countries studied. Unfortunately these expectations are not realised. More effort is needed to make the paper specific to diabetes prevalence and associated risk factors.

Author response: Thanks for your valuable comments and support provided in enhancing the focus of our manuscript. As we have discussed below we have done several modifications during revision to focus the manuscript on diabetes and associated risk factors as you have suggested.

Specific points

2. The diabetes epidemicity index is provided in the result section without any reference to figures or tables which makes this hard to follow. Moreover the index is provided only for Srilanka and other countries at various point of time. The importance of constructing an epidemicity index is not clear as nowhere the most recent data has been used for its construction. I sum, the construction of diabetes epidemicity index are curiously confused and the figure does not help.
Author response: As we have discussed it the ‘diabetes epidemicity index’ (% of the TGI made up by IGT/IFG) has a predictive value in determining the stage of an epidemic of glucose intolerance in a given population. Our results also bear evidence to this fact as demonstrated by the decrease in the ‘epidemicity index’ in the different countries with progressive secular increase in the frequency of diabetes increases (Figure 3). Hence with the prevalent diabetes epidemic in the region at present the recent ‘epidemicity indices’ for most regional countries are relatively low. However, it is noteworthy that the present prevalent epidemic in the region had been preceded by a high ‘epidemicity index’. Hence strategies aimed at primary prevention could be helpful to ameliorate a further increase in the diabetes epidemic in populations such as Sri Lanka where recent data shows a high prevailing ‘epidemicity index’. We have discussed this in detail in the discussion and included appropriate references as you have suggested during revision.

3. In India the most recent data on self reported diabetes prevalence at the national level can be found in National Family Health Survey, conducted during 2005-06. The author never mentioned about this important data set and some diabetes prevalence studies based on this nationally representative data set.

Author response: The article named “Prevalence and risk factors for self-reported diabetes among adult men and women in India: findings from a national cross-sectional survey” has been published (online only) in November 2011. Although, its results are relevant to this article, it was not eligible to be include in our study as we collected data until 31st December 2010. However considering that the one year time period we have updated our results by conducting search again using the search criteria till 31st Decemeber 2011. We identified 3 new articles from India and 1 from Nepal. We have
included these studies in the revised manuscript. However the above titled manuscript did not appear in the search results using MeSH key words (Diabetes mellitus with EP/epidemiology), as it is only in e-pub version and not assigned MESH terms as yet by MEDLINE. Thus, we did not include the above article as will breach the uniformity in data analysis that we used.

4. It is not clear from the title if the manuscript is about clinically diagnosed diabetes or self reported ones.

**Author response:** We didn’t try to discriminate the articles by clinically diagnosed or self reported diabetes. Although, there is over 1/3 of South Asians having undiagnosed diabetes our review was generalized to diabetes mellitus in the community settings (mentioned in the methods). As we highlighted in the limitation, diagnostic status is a significant limitation for interpretation of data.

5. Risk factors such as family history, age, sex, sbp, dbp and BMI have only being dealt with in the result section. Other risk factors such as diet and physical activity which are the important modifiable factors for diabetes have been untouched upon by the authors. Also education and wealth has been completely left out.

**Author response:** As we have mentioned in the method section, we performed meta-analysis for risk factors uniformly defined in the various studies. Despite, unhealthy diet, low physical activity, education level and wealth being well-known risk factor in the South Asian region, we were unable to include in the meta-analysis due to heterogeneity in definitions of the these risk factors among studies. For example: different countries have varied cut-offs/definition for assess wealth status, educational level and physical activity. We have already mentioned relevant studies supporting association of physical
activity, wealth/income, education and diet with prevalence of diabetes in the discussion section. Furthermore, we have also stated why they were not included in the meta-analysis.

6. The epidemiologic transition has affected high income countries as well as LMICs – the point of importance is that in LMICs the rate of increase is far in excess to that previously observed in high income countries – the nature of the problems is the same but solutions have to be found in a much shorter time frame and with far fewer resources.

Author response: Thank you, for this valuable comment. We have acknowledge this fact in the discussion section of the revised manuscript.

7. page 12 second para “This so-called ‘epidemiological transition’ could be also linked to the rapid industrialization occurring in the region as evidenced by the high prevalence of diabetes among urban residents.” What is the reference for this statement.

Author response: We have included an appropriate reference for the above statement.

8. There is some repetition in the paper: “During recent years urbanization has risen unprecedentedly in the South Asian region [43]….“ appear yet again (3rd time) on page 15.

Author response: We have removed this and other identified repetitions.

9. The explanation for Table 3 is not provided.

Author response: Table 3 compares the prevalence reported in present systematic review with latest prevalence data from other regions (according to IDF [reference provided]), to highlight the significant disease burden faced by South Asia. Table 3 is
briefly discussed in 1st paragraph of the discussion sections. However we feel that a
detailed explanation about table 3 is beyond the scope of the present study.