Author’s response to reviews

Title: Plasma glucose in screening for diabetes and pre-diabetes: how much is too much? Analysis of fasting plasma glucose and oral glucose tolerance test in Sri Lankans

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Response to reviewers’ comments

Reviewer reports:

Amutha Anandakumar, PhD (Reviewer 1):

Specific comments to the authors

1. In the methods section, the authors have mentioned eligible adults ≥18 years were selected, but in the results section (Table 2), the authors have included ≤19 years. Kindly explain.

Participants aged 18y or older were recruited. In the table 2, <19 group refers to those who were aged 18 or 19 years

2. The cut off value of 5.3mmol/L arrived in Sri Lankan population needs to be validated in other provinces of Sri Lankan population and also in other South Asian population. Even then, the cut off value is too low than the 5.6mmol/L where more number of people will be detected with prediabetes and diabetes. Through this cut off, at risk population can be
screened and prevention strategies can be adopted in them in order to prevent them from getting diabetes.

We agree with this suggestion. In fact, it is the message we wish to raise through this paper. Limitation of not covering the North and East provinces (2 out of 9 provinces in Sri Lanka) is addressed in the discussion section, last paragraph.

3. Majority of the population selected were females, this may lead to bias in sample selection. Equal number of subject selection need to be done. Did the authors do separate analysis for men and women? (Table 3). Was there any difference between them?

We agree with this possibility of bias. There was no difference in men and women. Comment added to discussion, last paragraph.

Indulekha Karunakaran (Reviewer 2):

Title: Fasting plasma glucose in screening for diabetes and pre-diabetes: how much is too much? Analysis and comparison of fasting plasma glucose and oral glucose tolerance test from a resource limited setting in South Asia

Journal: BMC endocrine disorders

The study was done on a population of 4031 subjects and arrives at the conclusion that a lower FPG cut off of 5.3 mmol/L has a better sensitivity and acceptable specificity in screening for diabetes

1. The manuscript uses two abbreviations FBG and FPG to indicate fasting plasma glucose. This should be modified.

Manuscript contains FPG only. Key word fasting blood glucose was changed to fasting plasma glucose

2. The title of the manuscript could be shortened

Shortened to : Plasma glucose in screening for diabetes and pre-diabetes: how much is too much? Analysis of fasting plasma glucose and oral glucose tolerance test in Sri Lankans
3. What is SLDCS? This is not explained in the manuscript.

Added to abstract and methods section (first paragraph). Already noted in abbreviations

4. The authors claim that 'FPG cut off of 5.3 mmol/L showed better sensitivity and specificity than 5.6 mmol/L in detecting diabetes and pre-diabetes'. It is not clear what the authors are trying to convey from this statement. If a subject has 5.3 mmol/L of fasting plasma glucose, will he/she be classified as having diabetes or prediabetes?

FPG > 5.3 mmol/L detects all with elevated plasma glucose, either pre diabetes or diabetes. Clarified under discussion – FPG cut off for pre diabetes/diabetes screening

5. It is mentioned in the methods section that samples were collected at fasting and at 2 hours. Why was a 2 hour cut point not derived for the population?

2h – OGTT cut points were similar to the current standards and was therefore not specifically detailed. Comment added under discussion – patterns of FPG and OGTT results

6. The methods used for measuring fasting plasma glucose are not detailed in the methods section. The intra and inter assay co-efficients of variation for the measurement of biochemical parameters should be provided in the methods section

Details included in to the method section:

“Blood for glucose estimation were collected into sodium fluoride/potassium oxalate tubes, centrifuged shortly after collection at the data collection centre and plasma was separated. Plasma and serum were stored in ice boxes until they were frozen at -20°C within 6-12 hours of collection. Biochemical tests were performed in a central laboratory in Colombo. Glucose assay was performed by an enzymatic (glucose oxidase) colorimetric method (Roche Diagnostics, Mannheim, Germany) in a Hitachi 704 chemical autoanalyser. The total coefficient of variation for glucose assay during the study period was 3.4%.”

7. In the discussion section, there are statements about the negative correlation of body height with glucose tolerance. These studies are not relevant for the findings of the present study. The references on gestational diabetes mellitus could also be removed
Inverse relationship between height and glucose tolerance was noted in an attempt to explain the higher OGTT values in women compared to men. Statement is rephrased to clarify the message. Reference to gestational diabetes was removed.