# PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

## ARTICLE DETAILS

| TITLE (PROVISIONAL) | This article contains at least one map figure. please insert the standard legal disclaimer text at the proof stage.Identifying the latent classes of modifiable risk behaviours among diabetic and hypertensive individuals in North Eastern India: a population-based cross-sectional study |
|---|---|
| AUTHORS | Marbaniang, Strong P; Lhungdim, Hemkhothang; Chungkham, Holendro |

## VERSION 1 – REVIEW

| REVIEWER | Goli, Srinivas<br>Jawaharlal Nehru University, Population Studies |
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| REVIEW RETURNED | 08-Jul-2021 |

| GENERAL COMMENTS | The paper conceptualised well and statistical analyses also performed correctly. The motivation of the paper and analytical strategy can be strengthened. The discussion and contribution of the analyses can be elaborated further. The language can be improved. Otherwise, I appreciate authors for brining out a good piece of research. |
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| REVIEWER | Joe, William<br>Institute of Economic Growth |
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| REVIEW RETURNED | 19-Jul-2021 |

| GENERAL COMMENTS | The introduction section can focus more on the research issue and the need to engage with the topic of modifiable risk behaviors. The detailed description of latent class approach can be shifted to the data / methods section.<br><br>Describe the NCD burden in the region.<br><br>The descriptive associations between the three LCA classes and the key variables of interest should be presented before describing the LCA regression results.<br><br>Why is social group not included in the explanatory part of the regression.<br><br>Model fit parameters may be explained for interpretation by general readers.<br><br>Sensitivity analysis can be conducted with inclusion of other modifiable risk factors. Information diet frequency of various food groups, use of smokeless tobacco and occupational background can be also used. |
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| | Key policy implications may be added in the context of NCD burden in the region. |
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# VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Comments to the Author:

**Comment:** The paper conceptualized well and statistical analyses also performed correctly.

**Response**: Thank you for appreciating our work.

**Comment**: The motivation of the paper and analytical strategy can be strengthened.

**Response**: Thank you for the suggestion. We have incorporated the suggestion in P 6 L1-6 and also include the conceptual framework in P9 Figure 2

**Comment:** The discussion and contribution of the analyses can be elaborated further.

**Response**: Thank you for this important suggestion. We now have further elaborate the discussion and study contribution in the discussion section. P14 L4-17, P15 L1-33, P16 L1-7, P17 L19-25

**Comment**: The language can be improved. Otherwise, I appreciate authors for bringing out a good piece of research.

**Response**: Thank you for the suggestion. We now have done the language editing and we hope that the paper is in better shape.

Reviewer: 2

Comments to the Author:

**Comment**: The introduction section can focus more on the research issue and the need to engage with the topic of modifiable risk behaviors. The detailed description of latent class approach can be shifted to the data / methods section.

**Response**: Thank you for this important suggestion. We now have incorporated the suggestion in P 4 L14 to P 5 L12 and in P 8 L5-23

**Comment:** Describe the NCD burden in the region.

**Response**: Thank you for this suggestion. We have now incorporated the disease burden in Northeast India in first paragraph P 4 L6-13.

**Comment:** The descriptive associations between the three LCA classes and the key variables of interest should be presented before describing the LCA regression results.

**Response**: Thank you for this important suggestion. We now have incorporated the Table 4 in Page 12 which represents the association of the background characteristics with the three latent class.

**Comment:** Why is social group not included in the explanatory part of the regression.

**Response**: Thank you for this important suggestion. We do agree with the reviewer that social group is also an important covariate, however we could not incorporate this variable in the analysis as this variable has many missing cases (missing cases=2042, 9%) and hence it may affect the outcome of the result.
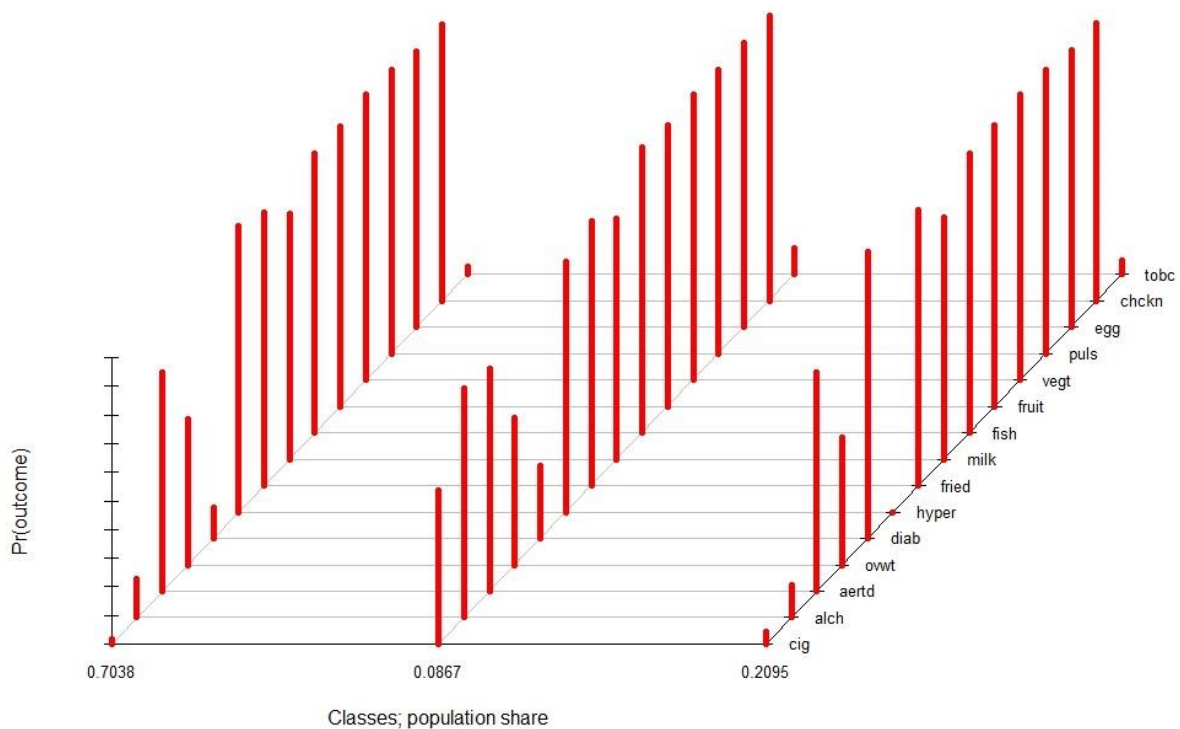
**Comment:** Model fit parameters may be explained for interpretation by general readers.

**Response**: Thank you for this suggestion. We have further elaborated the meaning of best fit model having the minimum parameters in P10 L10- P11 L1-6.

**Comment:** Sensitivity analysis can be conducted with inclusion of other modifiable risk factors. Information diet frequency of various food groups, use of smokeless tobacco and occupational background can be also used.

**Response**: Thank you for this important suggestion. In our dataset occupation variable have many missing cases (almost 72% missing cases, n=16,210), hence we didn't include occupation in our analysis.

Since the probability of consuming the food groups viz., fried food, milk, fish, fruit, vegetables, pulses, egg, chicken, and tobacco are almost the same in all the three classes. Hence, we will not be able to differentiate the class based on these information's.  Hence, we did not include in our analysis.



**Comment**: Key policy implications may be added in the context of NCD burden in the region

**Response**: Thank you for this important suggestion. We now have added some key policy implication in the conclusion part.

**VERSION 2 – REVIEW**

| REVIEWER | Joe, William |
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| | Institute of Economic Growth |

| REVIEW RETURNED | 29-Jan-2022 |
|---|---|

| GENERAL COMMENTS | Table 1 - Restrict the percentage reporting to one decimal place. |
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| | Same for Table 2. |
| | Add limitations related to missing cases on other relevant information such as on diet as well as social groups. |

# VERSION 2 – AUTHOR RESPONSE

Reviewer: 2

Comment 1: Table 1 - Restrict the percentage reporting to one decimal place.

Response: Thank you for the suggestion. We now have incorporated the comment

Comment 2: Same for Table 2.

Response: Thank you for the suggestion. We now have incorporated the comment

Comment 3: Add limitations related to missing cases on other relevant information such as on diet as well as social groups.

Response: Thank you for suggesting this important point. We now have incorporated this limitation in the revised manuscript Page 17 (last line of the limitation section).