

Review of: "A Mathematical Characterisation of COVID-19 in Mauritius"

Mario Coccia¹

¹ Italian National Research Council

Potential competing interests: none

A Mathematical Characterisation of COVID-19 in Mauritius, v2

The topics of this paper are interesting. The structure and content must be revised, and results have to be better explained by authors.

Title has to also indicate the period under study.

Abstract has to be shorter focusing on goal, methods, results and environmental, health and social policies for this islands that have a specific climate.

Authors have to improve the structure of the paper as follows.

- Introduction
- Theoretical background
- Study design
- Results and discussion
- Conclusion

Avoiding in the just mentioned sections, a lot of sub-headings that create fragmentation of the paper.

Introduction has to better clarify the research questions of this study and provide more theoretical background. Authors have to better describe the different sources of transmission dynamics of COVID-19 (e.g., climate, wind speed, air pollution, density, etc.) and risk factors in society, which can accelerate diffusion of this novel coronavirus in environment and after that they can focus on the topics of this study to provide a correct analysis for fruitful discussion (See suggested readings that must be all read and used in the text).

Sections 2 and 3-4 can be merged as theoretical background on epidemiologic modelling.

Authors have to avoid subheadings in section 4 that create fragmentation and confusion. If necessary, can use bullet points (same comments for section of results and all sections).

Modeling of the first and second COVID-19 wave should be put in the same section to support a clear study design, consistent and with appropriate comparative analyses of the two periods. Now is long and messy.

Methods of this study is not clear. The section of Materials and methods must be re-structured with following three sections:

- Sample and data
- Measures of parameters
- Models and Data analysis procedure. Modelling should be age dependent to be reliable.

Again, Authors have to avoid subheadings that create fragmentation and confusion.

Section 6 can be indicated as Results in the heading to be clear for readers.

The paper has a lot of figures that are difficult to digest, some of them can be put in appendix and inserting in the text the most important ones to improve the readability...

Table 1 has to indicate a note to describe with accuracy the parameters.

Tables 2 a comparison of Mauritius with large countries such as USA, UK is not appropriate, I suggest comparing with similar countries having similar climate for appropriate comparative analyses. This also because CMR is affected by density of population and climate. See suggested studies.

In figures and tables always indicate country and period under study.

To reiterate, avoiding in the just mentioned sections, sub-headings that create fragmentation of the paper.

Discussion. First, authors have to synthesize the main results in a simple table to be clear for readers and then show what this study adds compared to other studies.

Conclusion has not to be a summary, but authors have to focus on manifold limitations of this study and provide suggestions of environmental, health, crisis management and social policy, as well as how nations can prevent, with good governance, next pandemics with vaccination and nonpharmaceutical measures of control for Mauritius and similar nations. I suggest generalizing the results for international audience.

Overall, then, the paper is interesting, but structure is confused. Theoretical framework is weak, and some results create confusion... structure of the paper has to be improved; study design, discussion and presentation of results have to be clarified.

Suggested readings of relevant papers that have to be read and all inserted in the text and references.

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