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

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Potential competing interests: No potential competing interests to declare.

Review Report on

A Mathematical Characterisation of COVID-19 in Mauritius

In this work, the authors made an effort are made to identify the metrics for Mauritius and compare them to global averages towards the characterisation of covid-19 in Mauritius. Initially, the authors created mathematical models of how COVID-19 spreads throughout Mauritius and a large number of other nations, particularly in Europe. When the growth rate and the ceiling value of the mathematical models developed for various countries are compared, a fascinating observation is made the authors.

The authors calculated the reproduction number, which revealed the average number of subjects each contagious person infected at the start of the epidemic in Mauritius. This value therefore made it possible to calculate the proportion of the population that required immunisation to halt the virus's transmission. Moreover, various countries' crude death rates and case fatality rates are contrasted.

Over All work is good and more interesting and is more connecting with the current scenario particularly in terms of health hazards. In this connection, I recommend this work for publication except the following queries are supposed to be addressed,

- Authors need to provide the calculation part partially with reference to basic reproduction number R_0
- Authors are specifying the models of first covid-19 and second covid-19 with different formulae. What are the common parameters of these two models and their significance? What impact is there on the initial growth rate?
- Authors are supposed to mention data in the manuscript with the corresponding literature in the reference section.
- The authors are comparing the data in view of population, crude mortality rate and number of deaths among 8 countries and which is more appreciable. But their main motto is looking like towards the country Mauritius. What is the reason behind that? Also, the authors may include the same analysis with in the country by dividing in to different clusters. In this way, the analysis may be more specific and it may me more pointing with reference to data,
- The authors are providing table for the values of crude mortality rate. This is somewhat ok. But if the authors provide computational part towards the computation of crude mortality rate in terms of a suitable and systematic relation in terms of attributes, then the work may be more interesting and more comfortable for readers.
- What is the relation between Case Fatality Rate and Crude Mortality Rate? What is the impact of case Fatality rate on

crude mortality rate. Authors may provide this in the manuscript to get more insight.

- The authors mentioned that the value of ρ is very much dependent on data on one day. Justify this statement by providing some more relevant information with reference to the modelling to get more insight.
- The authors may include some more relevant literature in the reference section.