

Mathematical Model for COVID-19 Prediction: Concerns on Technical Efficacy

Viroj Wiwanitkit¹

¹Honorary Professor, Dr DY Patil University, Pune, India

Abstract

COVID-19 is a grave public health problem that has affected many countries around the world. The use of mathematical approach for understanding this outbreak is interesting. Using of a mathematical model for modeling of the outbreak might be helpful for clarification and prediction purposes. There are many reports on this issue. The various concerns faced regarding the technical efficacy of such a model have been discussed in this short article.

Keywords: Mathematical, Model, Technique, Efficacy.

Introduction

COVID-19 is a serious health problem that has affected various countries around the world. An attempt to understand the outbreak by applying a mathematical approach is interesting. The use of a mathematical model for modeling the outbreak may prove to be of some assistance for clarification and prediction purposes. There are many reports on this issue.

There are many local scientists in various settings, who have proposed a mathematical model for explaining the outbreak. Their techniques might be different. When the outbreak occurs, it can show that some models are correct while some are not. For example, in Thailand, the second country where COVID-19 occurred (Yasri & Wiwanitkit, 2020), there are many reports on the mathematical model for COVID-19 prediction (Hellewell et al., 2020; Liang, 2020; Ambikapathy & Krishnamurthy, 2020; Chen et al., 2020). Sookaromdee and Wiwanitkit reported the first model, and it was later proven to be a correct model (2020). Additionally, some local Thai researchers proposed certain other models. Some models show very large expected numbers of infected cases, and were later proven inaccurate. The correctness of the model, and the efficacy, depends on many factors. The concerns regarding the technical efficacy of a mathematical model for COVID-19 have been discussed in this short article.

Concerns on Mathematical Model for COVID-19 Prediction

As already mentioned, there are many incorrect models that were finally proven non-effective. The problems of those models might be due to several factors. For pre-modeling factors, the accuracy of the local available data for modeling is an important concern. Many countries might

have problems in the reporting system. The transparency of data is a big issue in many settings with local political problems (Wynants et al., 2020). Regarding the modeling factors, a sophisticated and complex model seems to cause problems in prediction. As previously mentioned, in the model of Sookaromdee and Wiwanitkit, a simple calculus-based model is used and it has finally proven to be a good model (Yasri & Wiwanitkit, 2020). The time and place dimension of the outbreak have to be considered for a reliable model, and the use of calculus-based model might be a good way for mathematical modeling.

Also, the control of errors in modeling is important. Before finalizing any model, rechecking for verification of data and mathematical manipulation is necessary.

Conflict of Interest

None

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