

Estimation of public compliance with COVID-19 prevention standard operating procedures through a mathematical model

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ABSTRACT

Despite the enforcement of control plan and preventive measures, the transmission of COVID-19 is still ongoing and yet to be contained successfully. Hence, this study aimed to determine the level of compliance of the public with the standard operating procedures for COVID-19 prevention in Malaysia. A compartmental model with new formulations of timely dependent epidemiological parameter for COVID-19 outbreaks was developed. The model, consisting of ordinary differential equations, was solved by the 4th order Runge–Kutta method. The model representation is in the form of graphical user interface (GUI) built in MATLAB. The estimation of the level of compliance of the population with the control measures was done by fitting the model curve to the actual data in the GUI. The result shows that the current compliance level of the public to the control measures is at an unsatisfactory level that leads to repeated lockdown. The compliance level estimation is important to policymakers and health officials as they can infer the effectiveness of intervention strategies. Additionally, this study revealed how individual responsibility to adherence the control measures will affects the number of cases. Further action to increase public compliance to a satisfactory level is required to halt the pandemic successfully.

KEYWORDS

Compliance; Modelling and simulation; COVID-19; Malaysia; Compartmental model

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