

## MODELLING OF DAILY COVID-19 CASES IN KENYA USING A SARIMA MODEL

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### ABSTRACT

Severe Acute Respiratory Syndrome is the primary cause of coronavirus disease (COVID-19). The first case was reported in Wuhan, China, on December 30th, 2019 with the first case in Kenya on 13th March, 2020. This contagious disease became a global challenge because it led to millions of deaths, economic disruption leading to loss of employment and economic instability. There was therefore a need to model daily COVID-19 cases in Kenya using the Seasonal Autoregressive Integrated Moving Average (SARIMA) model and forecast. Secondary data from the World Health Organization from 13th March, 2020 to 13th Jan, 2023 using R software. Data was found to be non-stationary using the Augmented Dickey Fuller test and differencing was done to make it stationary. The Box-Jenkins methodology was used in fitting the model to the data and afterwards forecasting was done. The best model was selected as the model with the least Akaike Information Criterion. The SARIMA model was fitted to the daily COVID-19 data then forecasting was done for sixty days. These forecasts will greatly create awareness of the trend and seasonality of this disease and therefore can be useful to the health care providers and the government for purpose of planning, policy formulation and resource allocation.

**Keywords:** *Covid-19, Sarima, Seasonality, Forecasts*