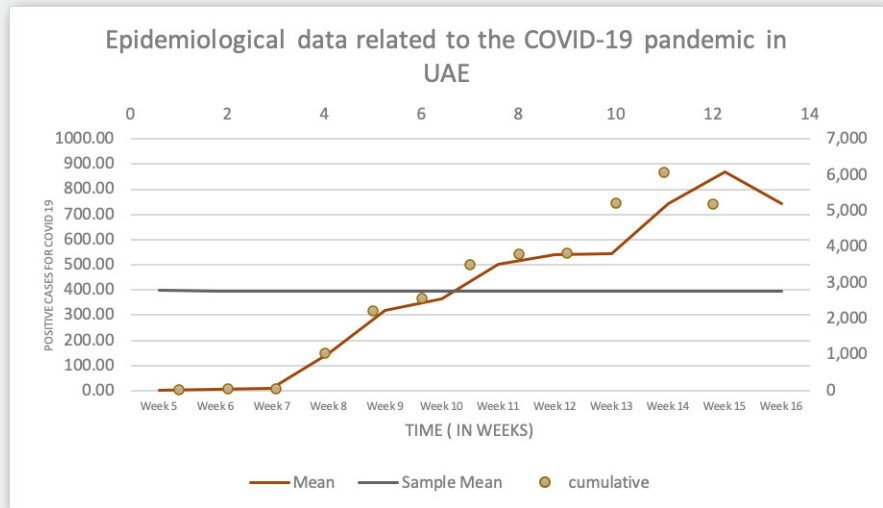


# COVID-19 RESEARCH NEWSLETTER

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## Data-based analysis and modelling of COVID-19 outbreak in the United Arab Emirates

Since the first suspected case of the coronavirus disease-2019 (COVID-19) on 1 December 2019 in Wuhan, China, a total of 35,192 confirmed cases have been reported in the UAE up to 1 June 2020, which is about 0.5% of the total confirmed cases worldwide. The first confirmed case with COVID-19 in the UAE was announced on 29 January 2020. Based on publicly available epidemiological data for the



UAE from 29 January 2020 to 1 June 2020, the research team provide estimates of the main epidemiological parameters. In particular, they provide an estimation of the fatality and recovery ratios, with 90% confidence intervals as the outbreak evolves. The study involves the impact of lockdown on these numbers using existing analysis tools. The developed model depends on the Kermack- Mckendrick Epidemic Model, which is based on relatively simple assumptions on the rates of flow between different classes of members of the population. Kermack- Mckendrick Epidemic Model has been used in epidemic modeling of SARS during the period 2002-2003. In this model, the population was divided into two groups including Susceptible individuals (S) and Infective individuals (I), assuming no birth, death, immigration or emigration. Therefore,  $N$  (number of population) =  $S(t) + I(t)$ , where  $t$  is the time in days. The (SI) model later on is complexed with other facts including recovered people and death, with their rates ( $R_r$ ) and ( $R_d$ ). Furthermore, Machine Learning (ML) forecasting models that have been used for COVID-19 pandemic have also been considered.

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If you are interested in sharing your COVID-19 related research, please send your contribution to [research.office@uaeu.ac.ae](mailto:research.office@uaeu.ac.ae)