Perspective
Volume 16:2, 2022

Journal of Generalized Lie Theory and Applications

ISSN: 1736-4337 Open Access

The Crucial Role of Mathematics in COVID-19 Research

Alice Johnson*

Department of Mathematics, University of South Florida, Tampa, USA

Perspective

COVID-19 is a highly contagious disease caused by the SARS-CoV2 virus (severe acute respiratory syndrome coronavirus 2. SARS-CoV-2 is the third zoonotic human coronavirus to develop in the twenty-first century, following SARS-CoV in 2002 and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012. The virus was first detected in Wuhan, Hubei Province, China, in December 2019. The disease is spreading over the world and has already claimed the lives of hundreds of people. There have been 15,257,287 confirmed cases and 628,240 deaths reported worldwide as of July 24, 2020. The disease affects the lungs and causes respiratory illness, which includes symptoms including a cold, cough, fever, and, in extreme cases, breathing difficulties [1,2].

In the early phases of an infectious disease epidemic, it's critical to understand the infection's transmission pattern. Variations in transmission patterns over time can assist researcher's better grasp the epidemiological situation, which is important for stopping COVID-19 from spreading in new regions by implementing countermeasures quickly. Mathematical models have long been used to predict disease epidemiology and so play a key role in disease outbreak prevention [3]. Understanding the behavior of an illness and deciding whether it will be eliminated or not requires mathematical models. To date, various mathematical models have been constructed to explore SARS-COV-2 epidemiology and transmission dynamics.

Researchers recently published an article in which they used a mathematical model to study the pattern of the SARS-COV-2 epidemic in China. They used Artificial Intelligence to predict epidemic peaks and sizes using the Susceptible-Exposed-Infectious-Removed (SEIR) model. Researchers used a susceptible infectious-recovered model to calculate COVID-19's transmissibility and severity in mainland China, as well as to assess the consequences of reducing containment measures in the case of a second epidemic wave [4]. Mathematicians developed a mathematical model to study the dynamical behavior of COVID-19 infection, which included the isolation class, and concluded that human-to-human contact is a possible cause of the SARS-COV-2 outbreak, and that isolating the infected person can reduce the risk of future COVID-19 spread.

All of these studies looked at a wide range of COVID-19 epidemiological factors, improved our understanding of the SARS-COV-2 transmission mechanism, and illustrated how mathematical modeling methods may be utilized to analyses COVID-19 transmission and spread. With the continuing epidemic, scientists throughout the world are working around the clock to develop a viable SARS-COV-2 vaccine, but the virus's final appearance is still unknown. Mathematical models may be beneficial in controlling COVID-19 transmission till then [5].

References

1. Griffith, Daniel A. "Toward a theory of spatial statistics: another step forward." *Geogr Anal* 19 (2010): 69-82.
2. Miller, Harvey J., and Elizabeth A. Wentz. "Representation and spatial analysis in geographic information systems." *Annal Assoc Am Geogr* 93 (2004): 574-594.
3. Van Meeteren, Michiel, Zachary Neal, and Ben Derudder. "Disentangling agglomeration and network externalities: A conceptual typology." *Papers Reg Sci* 95 (2016): 61-80.
4. Smirnov, Oleg A. "Geographic space: an ancient story retold." *Trans Inst Br Geogr* 41 (2016): 585-596.
5. Merriman, Peter. "Human geography without time-space." *Trans Inst Br Geogr* 37 (2011): 13-27.

How to cite this article: Johnson, Alice. "The Crucial Role of Mathematics in COVID-19 Research." J Generalized Lie Theory App 16 (2022): 325.

***Address for Correspondence:** Alice Johnson, Department of Mathematics, University of South Florida, Tampa, USA, E-mail: alicejohnson@mathphy.us*

Received: 02 February 2022, Manuscript No. glta-22-56351; **Editor assigned:** 04 February 2022, PreQC No. P-56351; **Reviewed:** 17 February 2022, QC No. Q-56351; **Revised:** 22 February 2022, Manuscript No. R-56351; **Published:** 01 March 2022, DOI: 10.37421/1736-4337.2022.16.325