

COVID-19 CASES

Phase-2 Document Submission

DATA ANALYSIS:

The Covid-19 pandemic is the most important health disaster that has surrounded the world for the past eight months. There is no clear date yet on when it will end. As of 18 September 2020, more than 31 million people have been infected worldwide. Predicting the Covid-19 trend has become a challenging issue. In this study, data of COVID-19 between 20/01/2020 and 18/09/2020 for USA, Germany and the global was obtained from World Health Organization. Dataset consist of weekly confirmed cases and weekly cumulative confirmed cases for 35 weeks. Then the distribution of the data was examined using the most up-to-date Covid-19 weekly case data and its parameters were obtained according to the statistical distributions. Furthermore, time series prediction model using machine learning was proposed to obtain the curve of disease and forecast the epidemic tendency. Linear regression, multi-layer perceptron, random forest and support vector machines (SVM) machine learning methods were used. The performances of the methods were compared according to the RMSE, APE, MAPE metrics and it was seen that SVM achieved the best trend. According to estimates, the global pandemic will peak at the end of January 2021 and estimated approximately 80 million people will be cumulatively infected.

CONTACT TRACING APPS:

Apps that enable contact-tracing are instrumental in mitigating the transmission of COVID-19, but there have been concerns among users about the data collected by these apps and their management. Contact tracing is of paramount importance when dealing with a pandemic, as it allows for rapid identification of cases based on the information collected from infected individuals about other individuals they may have had recent contact with. Advances in digital technology have enabled devices such as mobile phones to be used in the contract-tracing process. However, there is a potential risk of users' personal information and sensitive data being stolen should hackers be in the near vicinity of these devices. Thus, there is a need to develop privacy-preserving apps. Meanwhile, privacy policies that outline the risk associated with the use of contact-tracing apps are needed, in formats that are easily readable and comprehensible by the public. To our knowledge, no previous study has examined the readability of privacy policies of contact-tracings apps. Therefore, we performed a readability analysis to evaluate the comprehensibility of privacy policies of 7 contact-tracing apps currently

in use. The contents of the privacy policies of these apps were assessed for readability using Readability Test Tool, a free web-based reliability calculator, which computes scores based on a number of statistics (ie, word count and the number of complex words) and indices (ie, Flesch Reading Ease, Flesch-Kincaid Reading Grade Level, Gunning Fog Index, and Simplified Measure of Gobbledygook index). Our analysis revealed that explanations used in the privacy policies of these apps require a reading grade between 7 and 14, which is considerably higher than the reading ability of the average individual. We believe that improving the readability of privacy policies of apps could be potentially reassuring for users and may help facilitate the increased use of such apps.

VACCINE DISTRIBUTION:

This review focuses on vaccine distribution and allocation in the context of the current COVID-19 pandemic. The implications discussed are in the areas of equity in vaccine distribution and allocation (at a national level as well as worldwide), vaccine hesitancy, game-theoretic modeling to guide decision-making and policy-making at a governmental level, distribution and allocation barriers (in particular in low-income countries), and operations research (OR) mathematical models to plan and execute vaccine distribution and allocation. To conduct this review, we adopt a novel methodology that consists of three phases. The first phase deploys a bibliometric analysis; the second phase concentrates on a network analysis; and the last phase proposes a refined literature review based on the results obtained by the previous two phases. The quantitative techniques utilized to conduct the first two phases allow describing the evolution of the research in this area and its potential ramifications in future. In conclusion, we underscore the significance of operations research (OR)/management science (MS) research in addressing numerous challenges and trade-offs connected to the current pandemic and its strategic impact in future research.

TELEMEDICINE:

While telemedicine has been expanding over the past decade, the COVID-19–related restrictions regarding in-person care have led to unprecedented levels of telemedicine utilization. To the authors’ knowledge, no studies to date have quantitatively analyzed both national and regional trends in telemedicine utilization during the pandemic, both of which have key implications for informing health policy. This study aimed to investigate how trends in telemedicine utilization changed across the course of the COVID-19 pandemic.

THERAPEUTICS:

Coronavirus disease 2019 (COVID-19) is a highly contagious infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 has had a catastrophic effect

on the world, resulting in more than 6 million deaths worldwide. It has emerged as the most consequential global health crisis since the era of the influenza pandemic of 1918. As the virus mutates, treatment guidelines are altered to reflect the most efficacious therapies. This activity is a comprehensive review of the disease presentation, complications, and current guideline-recommended treatment options for managing this disease.

Screen individuals based on exposure and symptom criteria to identify potential COVID-19 cases.

Identify the clinical features and radiological findings expected in patients with COVID-19.

Apply the recommended treatment options for patients with COVID-19.

Create strategies with the interprofessional team for improving care coordination to care for patients with COVID-19 to help improve clinical outcomes.

TESTING TECHNOLOGY:

The corona virus disease 2019 (COVID-19) is a highly contagious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). More than 18 million people were infected with a total of 0.7 million deaths in ~188 countries. Controlling the spread of SARS-CoV-2 is therefore inherently dependent on identifying and isolating infected individuals, especially since COVID-19 can result in little to no symptoms. Here, we provide a comprehensive review of the different primary technologies used to test for COVID-19 infection, discuss the advantages and disadvantages of each technology, and highlight the studies that have employed them. We also describe technologies that have the potential to accelerate SARS-CoV-2 detection in the future, including digital PCR, CRISPR, and microarray. Finally, remaining challenges in COVID-19 diagnostic testing are discussed, including (a) the lack of universal standards for diagnostic testing; (b) the identification of appropriate sample collection site(s); (c) the difficulty in performing large population screening; and (d) the limited understanding of SARS-COV-2 viral invasion, replication, and transmission.

VIRUS VARIANT:

Coronavirus (COVID-19) was introduced into society in late 2019 and has now reached over 88 million cases and 1.9 million deaths. The Middle East has a death toll of ~80,000 and over 35000 of these are in Iran, which has over 1.2 million confirmed cases. We expect that Iranian cases caused outbreaks in the neighbouring countries and that variant mapping and phylogenetic analysis can be used to prove this. We also aim to analyse the variants of severe acute respiratory syndrome coronavirus-2 to characterise the common genome variants and provide useful data in the global effort to prevent further spread of COVID-19.

PUBLIC HEALTH MESSAGE:

The article presents the results of research of public opinion during the third wave of the COVID-19 pandemic in Russia. The study touches on the attitude of citizens to public health, as well as the reaction of social media users to government measures in a crisis situation during a pandemic. Special attention is paid to the phenomenon of infodemic and methods of detecting cases of the spread of false and unverified information about diseases. The article demonstrates the application of an interdisciplinary approach using network analysis of texts and sociological research. A model for detecting social stress in the textual communication of social network users using a specially trained neural network and linguistic analysis methods is presented. The validity and validity of the results of the analysis of social network data were verified using a sociological survey. This approach allows us to identify points of tension in matters of public health promotion, during crisis situations to improve interaction between the government and society, and to timely adjust government plans and actions to ensure resilience in emergency situations for public health purposes.

SUPPLY CHAIN INNOVATION:

The COVID-19 pandemic has affected global supply chains at an unprecedented speed and scale. This paper investigates the supply chain challenges that manufacturing organizations have faced due to the COVID-19 outbreak, particularly in emerging economies. We present a conceptual framework under the dynamic capability theory to analyze challenges and their pertinent mitigation strategies. Ten major challenges are identified based on a literature review, evaluation of several news articles, and discussions with experts. Further, the Grey-Decision-making Trial and Evaluation Laboratory (Grey-DEMATEL) method is applied to analyze the relationships between various supply chain challenges. Scarcity of Labor (PSL) emerges as the most significant challenge, closely followed by Scarcity of Material (SSM). The results also suggest that Inconsistency of Supply (PIS) is the challenge that correlates the most with other factors. Finally, in this paper we also provide guidelines and strategies for practitioners and scholars to better address supply chain challenges post-COVID-19 outbreak.

AI & MECHINE LEARNING:

The world thinks about coronavirus disease that which means all even this pandemic disease is not unique. The purpose of this study is to detect the role of machine-learning applications and algorithms in investigating and various purposes that deals with COVID-19. Review of the studies that had been published during 2020 and were related to this topic by seeking in Science Direct, Springer, Hindawi, and MDPI using COVID-19, machine learning, supervised learning, and unsupervised learning as keywords. The total articles obtained were 16,306

overall but after limitation; only 14 researches of these articles were included in this study. Our findings show that machine learning can produce an important role in COVID-19 investigations, prediction, and discrimination. In conclusion, machine learning can be involved in the health provider programs and plans to assess and triage the COVID-19 cases. Supervised learning showed better results than other Unsupervised learning algorithms by having 92.9% testing accuracy. In the future recurrent supervised learning can be utilized for superior accuracy.

VACCINATION PASSPORT:

In several countries, governments have implemented so-called 'COVID passport' schemes, which restrict access to venues such as bars or sports events to those who are vaccinated against COVID-19 and/or exempt vaccinated individuals from public health measures such as curfews or quarantine requirements. These schemes have been the subject of a heated debate. Concerns about inequality have played an important role in the opposition to such schemes. This article highlights that determining how COVID passports affect equality requires a much more nuanced analysis than is typically assumed. I identify a range of broadly egalitarian considerations that could be affected by the introduction of COVID passport schemes. While these schemes could undermine certain aspects of equality, I argue that they could also be used to promote equality. The magnitude and severity of these different effects, both promoting and undermining equality, depend on how precisely these schemes are framed and the local context in which they are implemented.

EDUCATION AND OUTREACH:

The outbreak of COVID-19 affected the lives of all sections of society as people were asked to self-quarantine in their homes to prevent the spread of the virus. The lockdown had serious implications on mental health, resulting in psychological problems including frustration, stress, and depression. In order to explore the impacts of this pandemic on the lives of students, we conducted a survey of a total of 1182 individuals of different age groups from various educational institutes in Delhi - National Capital Region (NCR), India. The article identified the following as the impact of COVID-19 on the students of different age groups: time spent on online classes and self-study, medium used for learning, sleeping habits, daily fitness routine, and the subsequent effects on weight, social life, and mental health. Moreover, our research found that in order to deal with stress and anxiety, participants adopted different coping mechanisms and also sought help from their near ones. Further, the research examined the student's engagement on social media platforms among different age categories. This study suggests that public authorities should take all the necessary measures to enhance the learning experience by mitigating the negative impacts caused due to the COVID-19 outbreak.

MENTAL HEALTH SUPPORT:

The Coronavirus Disease 2019 (COVID-19) pandemic has threatened global mental health, both indirectly via disruptive societal changes and directly via neuropsychiatric sequelae after infection. Despite a small increase in self-reported mental health problems, this has (so far) not translated into objectively measurable increased rates of mental disorders, self-harm or suicide rates at the population level. This could suggest effective resilience and adaptation, but there is substantial heterogeneity among subgroups, and time-lag effects may also exist. With regard to COVID-19 itself, both acute and post-acute neuropsychiatric sequelae have become apparent, with high prevalence of fatigue, cognitive impairments and anxiety and depressive symptoms, even months after infection. To understand how COVID-19 continues to shape mental health in the longer term, fine-grained, well-controlled longitudinal data at the (neuro)biological, individual and societal levels remain essential. For future pandemics, policymakers and clinicians should prioritize mental health from the outset to identify and protect those at risk and promote long-term resilience.