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An Artificial Intelligence Technique used in Mathematical Model for Predictions Symptoms of COVID-19 Pandemic

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Abstract— COVID-19 is a virus still has the potential to spread across countries with no vaccination developed around the world. Artificial intelligence techniques can be instilled to help design better strategies and make productive decisions. These techniques evaluate the situations of the past thus allowing better predictions on the situation that will occur in the future. These mathematical predictions can help prepare for potential threats and consequences. Artificial intelligence techniques play a very important role in obtaining accurate prediction. To calculate the risk factor in the community by using random samples. The predictions of cumulative positive cases of MERS-COVID-19 are by probability methods. Analysis and assumption of outbreak of the disease will be improved by estimating the random sample. Forecast of a pandemic can be made on different parameters like the impact of environmental factors, the effect of quarantine, the incubation period, age, gender and many other factors. Decision making process will be improved. This study examines these challenges and also provides a number of recommendations for people currently battling the global COVID-19 pandemic.

Keywords* — *COVID-19; MERS; Pandemic; Artificial Intelligence; Prediction

1. Introduction

Today as compared to SARS and COVID-19, it is obvious that MERS is one of the potentially, the most dangerous disease. The fact that the virus still has the potential to spread across countries with no vaccination developed can be a matter of concern. Between April 1 and May 31, 2020, the Saudi National CSR focal point reported nine new cases of MERS-Covid infection, including five deaths. The cases were reported in Riyadh (seven cases), Assir (one case) and in the northern regions (one case). Most of the cases were severe and the age of reported cases ranged from 40 to 96 years in Riyadh, six were from a hospital outbreak in the region between May 21 and May 31, 2020. In this paper we are attempting to formulate the mathematical predictions on the evolution time of the number of positive cases for MERS-Covid infection. Based on Monte Carlo simulations, we formulated to have a more robust prediction of the day of the above-mentioned peak and of the day of the substantial decrease in the number of daily positive cases and fatalities. Authenticate data are used for the analysis and the predictions are obtained with a heuristic approach. Also, since they are based on a statistical approach and they have not taken into account either a number of relevant tissues such as number of daily nasopharyngeal swabs, social distancing, biological and epidemiological.

2. Background and Problems in Covid 19

Mathematical models are always efficient for the understanding of ongoing trends for COVID-19. Models are essential for making a therapeutic choice when peak capacity has been exceeded or without easy access to laboratory tests.8 Models are critical for the policy-maker to acquire medical supplies, allocate human resources and hospital beds. Hospital and ensuring health sustainability during the peak and duration of the epidemic.8 Researchers around the world have performed numerous mathematical models and numerical analyzes on COVID-19 since its outbreak.

In the following section shows proposed methods and presents the results with focus on fatality ratio, disease tendency, basic reproduction numbers, asymptomatic infective, herd immunity, and the effects of intervention measures.

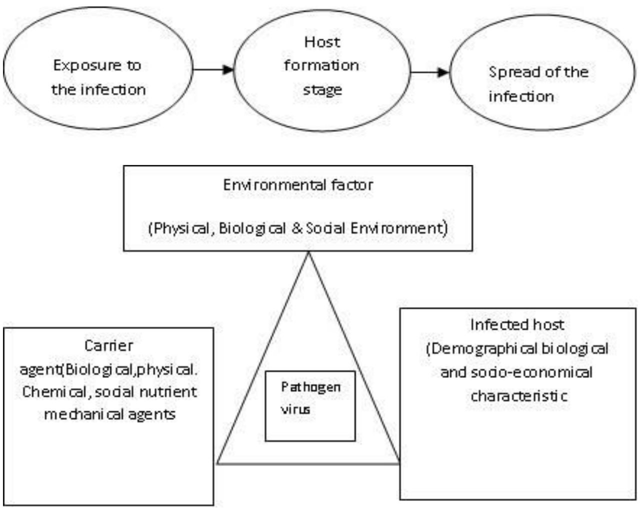

Fig. 1: Flowchart of the Analysis

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3. Proposed Method

Applicants/Sample – If the misconceptions are removed in the selected small percentage of groups then it will be very effective. Problems will be sorted and removed very easily for a selected sample. This can be applied then in the classroom teaching.

Implements & Methods – Pre-test will be raised for ruling out the fallacies & after giving intermediation post-test will be given for knowing that to which level the misconceptions are detached from the minds of student-teachers. Subsequently the purpose of this study is to find out the errors & to fathom the difference Qualitative analysis will be carried out after giving intervention.

Example 1: Let us assume an area with population of 100000 people. Chebyshev, inequality is for random variables, but, it can generalize to a statement of measurement spaces.

Let X be (integrable) a random variable with a finite expectation μ and a finite non-zero variance σ^2. Then, any real number k> 0, Pr (| X-μ | ≥kσ) ≤1 / k ^{2}. Only the case k> 1 is useful when k≤1 1 and r.h.s1 / k^2 ≥1 and the inequality is trivial, all possibilities are ≤1. Since, it can be applied to the random distributions, if they have a finite mean and variance, the inequality shows a deprived bound on what could be inferred if multiple aspects of the distribution involved were known.

Example 2: Let $N=10^6$=1,000,000 Then the mean and the variance of $\frac{S10^6}{10^6}$ are,

$$E[\frac{S10^6}{10^6}] = p, V[\frac{S10^6}{10^6}]=\frac{p(1-p)}{10^6} \le \frac{1}{4}.\frac{1}{10^6}$$

$$Pr(|\frac{S10^6}{10^6} - p| \ge \frac{1}{200}) \le \frac{1}{4.10^6}.200^2 = \frac{1}{100}$$

In other words, a generic value $\frac{S10^6}{10^6}$ of is an approximate value of p.

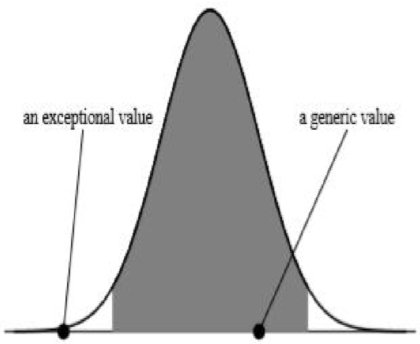

Fig.1: Distribution and Generic Value of S (Conceptual Figure)

Example 3: Suppose that Pr(X<c)=1/10000.So X can be less than c, but the probability is very small. Take a sequence $\{X_k\}_{k=1}^{40000}$ of independent copies of X, and define S:=$min_{1\le k\le 40000} X_k$. Then we have

$$Pr(S<c)=1-(1-\frac{1}{10000})^{40000} \approx 1 - e^{-4} = 0.981.$$

$$\{1-\frac{1}{n}\}^{(n)^4} \approx (e^{-1})^4$$

So, S takes a value less than c with high probability of 0.98.

4. Result and Discussions

- Calculated the risk factor in the community by using random samples.
- Fit and predictions of cumulative positive cases of MERS-COVID-19 by probability methods.
- Analysis and assumption of outbreak of the disease will be improved by estimating the random sample.
- Decision making process will be improved.

5. Conclusion

- The study will prove to be important to interpret the misconceptions in understanding the concepts of mathematics and physics subject with special reference to continuity, differentiability and vector.
- The study will help to maintain continuity and remove the misunderstanding in mathematics among student teachers in continuity, differentiability and vector.
- The study will help in teaching mathematics school, colleges, seminars, symposium conference and research papers so that a proper channel is established for student and teachers in understanding the concepts clearly.
- This study will help student-teachers to recognize the teaching methodology for the different category of students.
- This study will be effective in teaching mathematics.
- Novel Corona virus related disruption can give educators time to rethink the education sector.
- Education Technology has entered the gap and will continue to play a key role in the education of future generations
- In a world where knowledge is just a click away the role of the educator must also change.
- Decision making process will be improved and improved learning process
- Save time and energy & Easy to use.
- Platform independent.
- Practical Capability Develop.

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