Big Data Analytics on Irritating Anxiety of Long COVID

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Abstract

Big data and its analytics can perform in different areas of human society. The aim of this paper is to produce the irritating anxiety of Long COVID from different age groups of persons in Kottayam district, Kerala state, India. Using different communication methods persons can deeply contact and can discuss the matters in rapid way. In 2020, COVID-19 disease spread in the world by physical contacting, initially from neighbor contacts and it spread all over the world. The communication systems communicate the pandemic situation and discuss various treatment methods in appropriate time. Apart from vaccination mind power and immunity power attained by the humans through trained personals as advice and physical exercise. All these are fully favored during that time and the humans had overcome the situation. But in after some years the anxiety is existing in human mind about the virus and vaccination with its side effects. The feel of the disease after COVID-19 is based on the early affected Corona virus and this virus still existing in human body. Newly formed diseases have the same symptoms of COVID-19 and the humans are afraid about the presence of Corona virus. By an evaluation of different age group of persons in a district, they have a faith, that is, Corona virus generating different impact in human mind and that will lead to anxiety in human mind.

Keywords: **Big Data, COVID-19, Long COVID, Irritating Anxiety, Covaccine, Covishield**

1. Introduction

Big data refers to the massive volume of data from organizations, society, social media and medical research. This large volume of data is either structured or unstructured data and it is retrieved from different sources such as clinical consulting, online sequence of forms filling, continuous transaction and more.

Various sources of data collection are based on certain characteristics on the performance of data processing and analytics of evaluation. These characteristics are called V's of big data. [1]

Big data processing is a traditional data processing based on historical data in high volume and velocity by the decision making to produce analytical outcome. This data is too large with its nature within nation or international. Disease related big data always spread to worldwide and analytics can conduct in different nations from appropriate data collection in their geographical areas. Exact analysis can handle from the human and their body constitution can evaluate with different resources. COVID-19 existed as a worldwide disease and it makes more problems in world society [2]. COVID-19 was controlled by different factors but still it is continuing as different disturbances among humans and it is reflected as physical body and mental problems [3]. Anxiety of Long COVID generates more problems and some persons are also thinking about the empowerment of Corona virus, then it will return back to the society. From big data analytics this area can produce certain prediction to the satisfaction and relaxation of such persons. Doctor consultation and counseling from psychologists can also reduce the anxiety about Long COVID diseases.

Mainly four Long COVID anxieties are evaluated, first, corona virus again will infect in the world society, second, economic status due to COVID-19 [4], third, existence of corona virus is still in human body causing various disturbances, and last, Covishield vaccination side effects discussed by the press/media.

2. Literature Review

Large volume of data can process deeply and a good decision making can conduct in big data analytics. Different type and quality of data can gather from different type organizations or community. These are related to patient-related data processing including doctor-patient consulting, advice, suggestions, feedback and all such discussions. Health care data is huge amount of data that is including, recovery of disease, continuing the disease in the same stage or altered to different diseases [5]. Proper way of data is an important factor and its processing tool selection generates good outcome and this is an input to the future analysis in different fields of health care. Large amount of data has to store in huge databases for future retrieval, and in this case valid data sharing is inevitable for reference to get acute information

Small units of data items are joined to the big data and it have different properties, processed in different organizational spaces [6]. These organization spaces are combined together to manage, process and analyze big data for analytics. Data of COVID-19 and Long COVID processes different type of data items [7].

- Consulting data can receive from the communication of doctor and patient in a hospital or through an online meeting. Patients and disease data can store in appropriate database storage in organizations.

- Patient-to-patient communication shares the current condition of disease, time and scope of disease can communicate time-to-time. This communication information can store in big databases for analytics.

- Social media data from different physical locations can store the data through questionnaire using data form.

- A third-party communication with patients can evaluate their level of satisfaction, food consumed, their own activities related to the disease like counseling, exercise, sleep etc.

- Research activities including medicine, new equipment from user requirements and new scientific innovations [8].

These are the facilities for patients and related organizations, and through this can provide better services to the public.

Using big data and its analytics that produces informative outputs and it predicts the future innovations. Existing data is evaluated with new trends and it is the prediction of expected things [9]. Number of feedback evaluation is also conducted during this time depending on variously collected data from different sources.
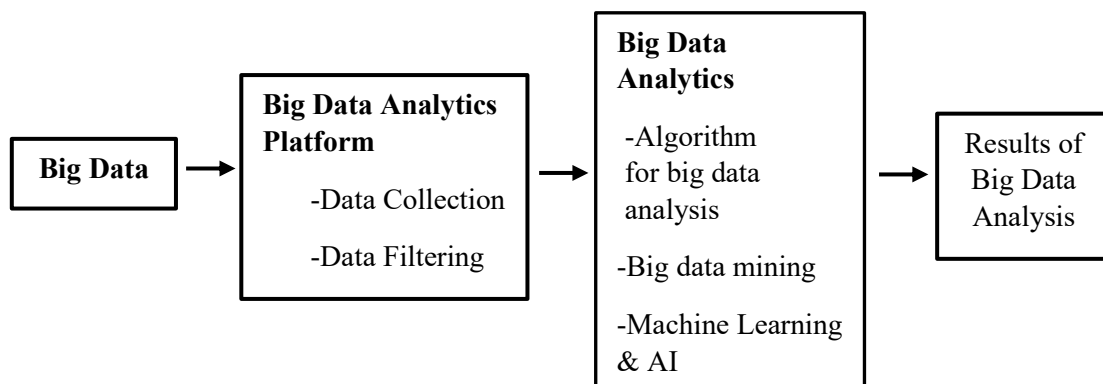

Fig 1. Process of Big Data

3. Methodology

a) Long COVID

Long COVID or Long-term effects of COVID is a chronic condition among COVID-19 patients that continues the disease nature in their future life. That is expressed as physical body health problems cause pain and other disturbances of different internal and external parts of body [10]. Commonly reported symptoms are Fatigue, brain fog, post-exertional malaise, weakness, feeling tired, rapid or pounding heartbeat and Tremer [11]. In Long COVID period patients will think about cancer, diabetes, tuberculosis, gastrointestinal problem, and assigns that may happen in future from SARS-CoV-2 infection of COVID-19 [12,13]. Treatments applied in Long COVID time mainly in the symptomatic visibility of diseases. Through this the immunity power increased in appropriate situation. Mental health is a caring parts of Long COVID, otherwise the Long COVID that cause mental impairment [14, 15, 16].

b) Anxiety of Long COVID

Persons contracted COVID-19 has anxieties about diseases from corona virus in future and they do not think about the immunity of vaccination. Most of the persons are considered about the diminishment of the power of Corona virus is automatically reduced the effect of virus and not through vaccination. The study evaluates the economic condition and the changes the life style of humans, these are supported by the respondents [17]. A change in work or career affected to humans and some of them have forced to change their work in another field. Some persons are worried about the negative side effects of the Covishield vaccine that are currently being discussed by the press/media.

Data gathered from the public especially in Kottayam district of Kerala, India using both online Google form and hardcopy data form as questionnaire. Anxiety-related Long COVID questions were included in the questionnaire. Mr. Elijah Korah Bino, BCA graduate of Girideepam Institute of Advanced Learning, a college affiliated to Mahatma Gandhi University Kottayam, Kerala, participated to meet the persons and collected data from rural areas of Kottayam district by using hardcopy data forms. His contribution is fully appreciated.

4. Results Presentation

a) Analytics on the Anxiety of Long COVID using Gathered Data

Around 500 individual details are evaluated persons having anxieties in this Long COVID era, majority of the persons are afraid about the corona virus and the side effects of vaccination. Around 120 persons are again affected COVID after their vaccination. Some of them think getting the vaccine did not do much good.

TABLE 1: OVERALL EVALUATION OF ANXIETY IN LONG COVID (COUNT OF PERSONS)

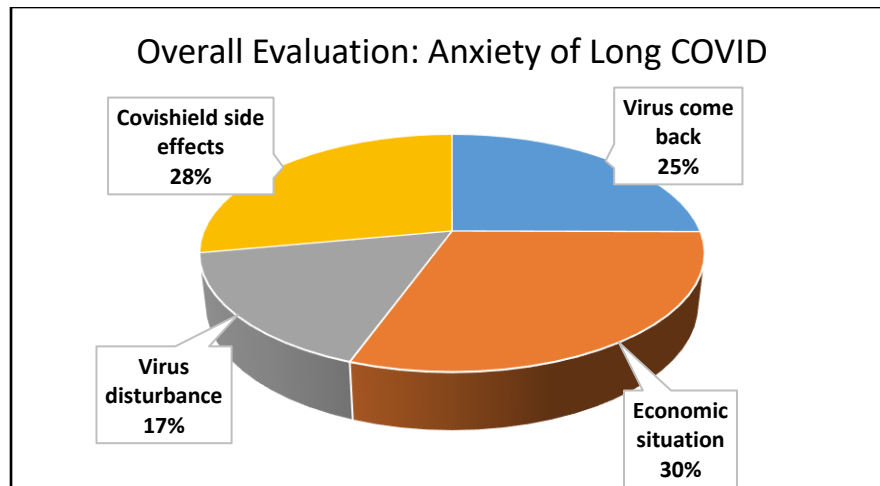| Virus comes back and infect humans	About economic situation and status due to COVID	Corona virus is still present in human body and causing various disturbances	About Covishield vaccine side effects
141	171	93	157

Figure 2: Overall Evaluation

5. Discussion and Analysis

Data directly collected from individuals through Goggle form and the distribution of hardcopy forms as questionnaire. Initially gave awareness to the persons and assured these collected data is only will use for the research work. From this assurance the valid data could collect from each individual. Persons are divided into five age groups and their vaccination status is evaluated in Table 2, and its graph representation is in Figure 3. From this, more persons the age above 20 are used Covishield vaccine during the time of COVID-19. The average anxiety of both male and female is 15.42 percentage, and about the Covishield vaccine side effects propagated in social media. Long COVID anxieties of male and female percentage values are shown in Table 3. Its corresponding column chart representation is shown in figure 4.

Finally an evaluation conducted about Long COVID anxiety through the correlation coefficient between male and female, and the value produced as 0.904322. Figure 5 shows the SPSS report of correlation coefficient. This specifies both male and female Long COVID anxieties are very similar, because they are both fully suffered the COVID-19 pandemic, post COVID, and Long COVID disturbances and problems in the environment.

TABLE 2: VACCINATION STATUS (IN PERCENTAGE)

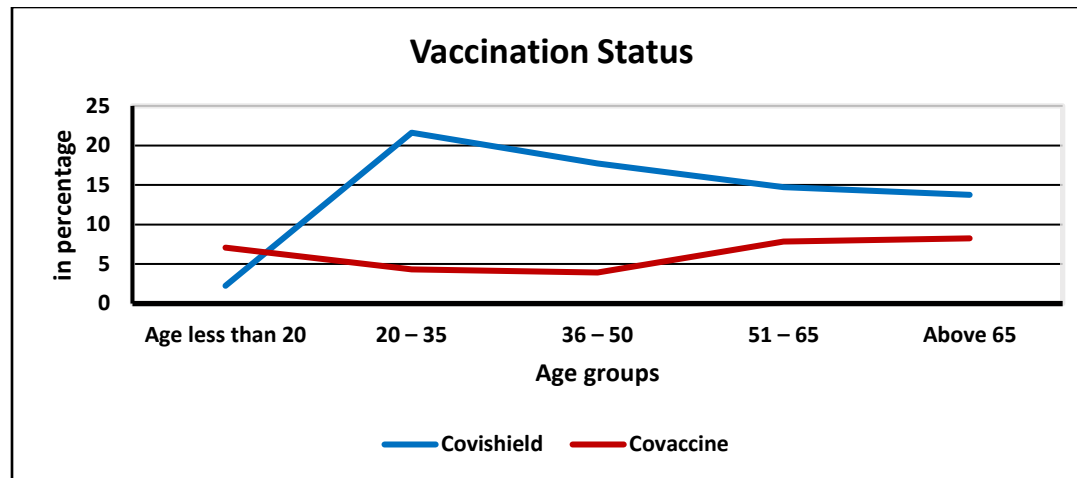| Age Group	Covishield	Covaccine
Age less than 20	2.25%	7.07%
20 – 35	21.61%	4.32%
36 – 50	17.72%	3.93%
51 – 65	14.73%	7.86%
Above 65	13.75%	8.25%

Vaccination Status

Fig. 3: Vaccination Status

TABLE 3: ANXIETY OF LONG COVID MALE AND FEMALE (IN PERCENTAGE)

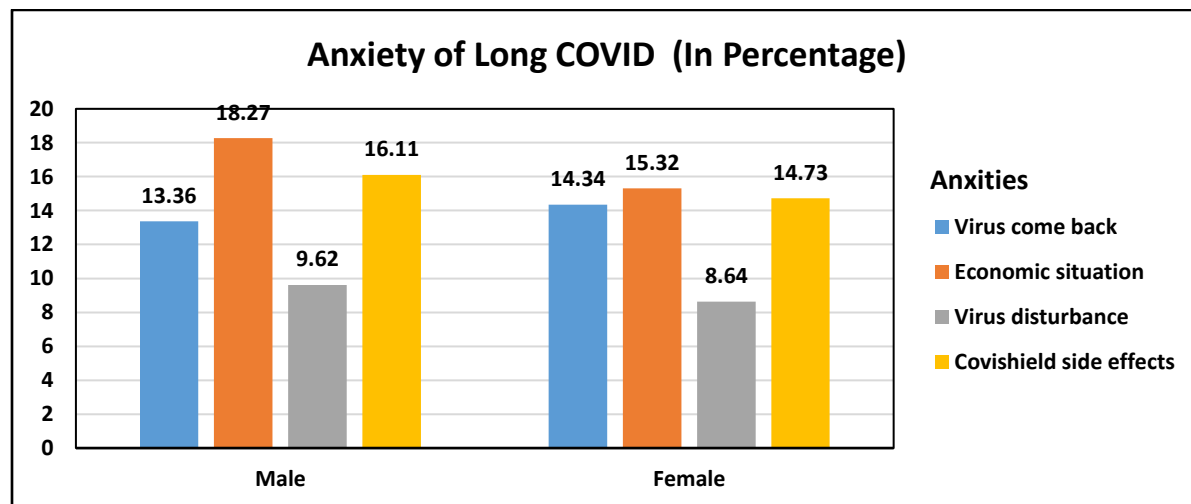| Gender	Virus comes back and infect humans	About economic situation and status due to COVID	Corona virus is still present in human body and causing various disturbances	About Covishield vaccine side effects
Male	13.36	18.27	9.62	16.11
Female	14.34	15.32	8.64	14.73

Anxiety of Long COVID (In Percentage)

Figure 4: Anxiety of Long COVID (Male and Female)

Correlations

		Male	Female
Male	**Pearson Correlation**	1	.904
	Sig. (2-tailed)		.096
	N	4	4
Female	**Pearson Correlation**	.904	1
	Sig. (2-tailed)	.096	
	N	4	4

Fig 5: SPSS Correlation Coefficient Report

6. Conclusion

Long COVID patients' data from all over the world is considered as big data and its corresponding implementations occur the identification of problems. The disease begins from COVID-19 and could cure with a period of pandemic situation extended to the Long COVID stage that is existing in long time. In human mind that produces anxiety in this time and different critical situations faced with this Long COVID diseases. Such person's evaluation is a great thing to reduce the stress in this moment and discuss the matters with other experienced personalities. These persons fully identify each and every physical and mental problem that is suffered by the Long COVID patients. A questionnaire of this situation gives more fruitful information about COVID and long COVID systematic measures in their mind. Through this information among male and female persons, their emotions and feedback can evaluate for better decisions and suggestions to them. This study analyzed the long COVID persons of vaccinated and unvaccinated effects with vaccine power or immunity of humans decided by their responses from supplied data forms.

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