SYSTEMS-LEVEL QUALITY IMPROVEMENT

The Rising Number of COVID-19 Cases Reflecting Growing Search Trend and Concern of People: A Google Trend Analysis of Eight Major Countries

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The Corona-virus (2019-nCoV) is a kind of zoonotic virus that has been first proclaimed in Wuhan (China). By 10th April 2020, the pandemic (COVID-19) has infected more than one and a half million (1698881) people across the world. During the last couple of weeks a sharp surging trend (COVID-19 infection) has been recorded [1]. The community dissemination is a major cause behind this exponential growth. The substantial growth of this pandemic virus (COVID-19) has created a scary and stressful environment [2]. The consequence of the stress is so high that fear of infection forces the persons to suicide [3]. The key intention of this analysis is to highlight the escalating cases of COVID-19 and its refection in the growing search trend and concern of the people from 01st March to 10th April 2020.

During this observation period, the worldwide COVID-19 infected cases have been raised from 88,585 to 1,698,881 (~1.7 million). The highest number of new cases (101736) have been observed on 3rd April. An average growth rate of 7.58% (new_cases>70,000) has been witnessed. As of 10th March, the growth in the global contaminated cases has been intensified. Moreover, in the last five days of this study, 349,830 new cases have been appended. Likewise, the mortality rate has also skyrocketed over this time, which is badly affecting the mental state and immunity of the humans.

Similar statistics of eight major countries (United States, Spain, Italy, France, United Kingdom, China, Iran, and India) have also been accessed (Table 1).

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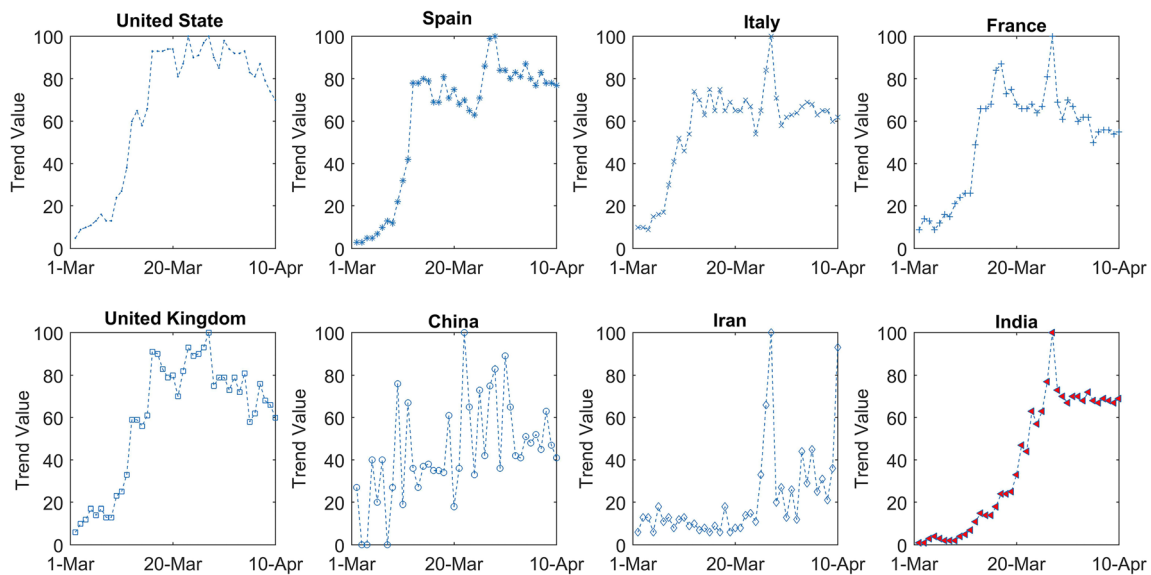
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Among these countries, an unexpected growth has been witnessed in both infected and fatal cases. The impacts of COVID-19 are on the peak for United States, Spain, Italy and France. Due to the momentous population density, Indians are frightened of mass destruction [4]. .

Additionally, the COVID-19 fear and concern have been well reflected on Google searches and the same can be validated through Google wave of interest. The Google trend of these eight countries for the term 'COVID-19' has also been explored. The trend value reflects the people's interest in the searched item. The highest and lowest rates of search interest on the Google wave are represented by 100 and 0 respectively (Fig. 1).

The waves of the Google interest have been raised over the observed period (01st March to 10th April). The increased Google trend implicitly represents the folk's state of distress, despair, and concern for this pandemic. A sharp increase in the trend has been observed from 10th march to 10th April 2020. During the observation period, a series of high values could be observed on the Google wave of interest of United States, Spain, Italy, France, United Kingdom, China, Iran, and India. For United States, 23rd and 27th March 2020 represents the peaked searches on the Google wave of interest. The average value of the Google interest for two different phases i.e.(01st January to 29th February) and (01st March to 10th April) have also been computed. The mean values for first and second phase of United States, Spain, Italy, France, United Kingdom, China, Iran and India are (0.78, **66.46**), (0.81, **60.85**), (1.65, **56.68**), (1.15, **52.78**), (1.03, **59.41**), (9.86, **44.29**), (1.28, **23.19**) and (0.04, **39.78**) respectively. Additionally, the correlation rate between the total COVID-19 contaminated cases of countries (United States, Spain, Italy, France, United Kingdom, China, Iran and India) and their corresponding Google trend values are (0.37, 0.58, 0.52, 0.28,

Table 1   Statistics of COVID-19 [1]

Country	Number of Infected Cases		Number of Fatalities	
	On 01st March 2020	On 10th April 2020	On 01st March 2020	On 10th April 2020
United States	75	502,876	01	18,747
Spain	84	158,273	00	16,081
Italy	1701	147,577	41	18,849
France	130	124,869	02	13,197
United Kingdom	36	73,758	00	8958
China	80,026	81,953	2912	3339
Iran	978	68,192	54	4232
India	03	7600	00	249

Fig. 1   Google Trend (COVID-19)

0.26, 0.49, 0.60 and 0.61) respectively. A positive correlation between the number of infected cases and the Google trend values have been recorded for eight major countries. The correlation value is higher for Spain, Iran and India.

The Google trend can be further mined to determine the least and most infected regions of the countries. To avoid the massive increase of psychological disorders, there is a need to access the mental state of COVID-19 afflicted individuals [5]. Based upon the high wave of interest in the regions, the semantic analysis of the searches can be carried out to find the prevalence of psychological impacts and the need of psychological intervention (behaviour and cognitive) for mental health problems during and after this pandemic. This would help in delivering therapeutic assistance to improve psychological resilience and to boost immunity of the COVID afflicted, suspected and infected victims [6].

Compliance with Ethical Standards

Conflict of Interest   None.

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