

“COVID-19” a Pandemic

A statistical study of India

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Abstract: Corona virus dies in short Covid -19 is caused by a new discovered corona virus. It is a communicable disease which has taken a terrible form on whole world. The first case of Covid 19 was detected in the month of December in Hubei province in China. According to Chinese authority this virus is stemmed from a wet market located in Wuhan in Hubei province. In this report a descriptive and exploratory research is done at all the cases diagnosis as of Feb 11, 2020. All COVID-19 cases reported through February 11, 2020 were extracted from China's Infectious Disease Information System. The analysis included: 1. patient characteristics, 2. Symptoms of the disease. 3. Preventive measures taken. 4. Application developed for COVID 19.

INTRODUCTION

Corona viruses (CoV) is from the family of RNA (Ribonucleic Acid). According to WHO corona virus belong to the group of viruses which cause respiratory infection. As the virus particle exhibits a characteristic “Corona”(crown) of spike protein around its lipid envelope it is called corona virus. In animal and human transmission of CoV infections are very usual. Some strains of Cov can be transmitted between animals and humans which is called zoonotic, but mostly strains are not zoonotic.

In humans CoV can cause illness ranging from the common cold to more severe disease such as Middle East Respiratory Syndrome (caused by MERS-CoV) and Severe Acute Respiratory Syndrome (caused by SARS-CoV). According to source of Chinese authority the first case of covid 19 was detected in the wet market of Wuhan. Multiple worker and visitors of the wet market got infected by this virus. Such market can have very high risk because the hygiene standard is difficult to maintain because of which the virus and bacteria can be transmitted easily from animal to human. They are also densely packed. Though the source of covid 19 is not confirmed but it is believed that this virus is transmitted from bat only because Bats are host to a wide range of zoonotic viruses which includes Ebola, HIV, Rabies. This disease was first detected in China in 2019, and in a very short duration it spreads in all over the world, which resulted in affecting many more people across the globe.

HOW COVID-19 SPREADS

COVID-19 spreads mainly by droplets produced as a result of coughing or sneezing of infected people.

1. Person-to-person:

Covid 19 is a communicable disease which means it can be transmitted from one person to another within 6 ft of distance. The respiratory droplets that produced when an infected person coughs or sneezes this transmission is possible. These droplets can land in the mouth or noses of people who are nearby or possibly be inhaled into lungs.

2. Can someone spread the virus without being sick?

People are thought to be most contagious when they are most symptomatic (the sickest)

Some spread might be possible before people show symptoms; there have been reports on occurring with this new coronavirus but this is not thought to be the main way the virus spreads.

3. Spread from contact with contaminated surfaces or objects: Though it is possible but it is not the main way of virus spread. A person can get infected by touching their own mouth and nose or possibly their eyes.

The incubation period of COVID-19(time between getting the infection and showing symptoms) is 1 to 14 days. Some people with the infection but without any serious symptoms can also spread disease.

WHICH GROUP OF PEOPLE ARE AT HIGHER RISK OF GETTING INFECTED?

1. People who have travelled to other countries in past 14 days and
2. their family members
3. People coming from other states if they have been working with people who travelled to other countries in last 14 days.
4. Family members and contacts of patients confirmed to have COVID-19.
5. People older than 60 years of age and people with medical problems like high blood pressure, heart problems, respiratory disease/asthma, cancer or diabetes are at higher risk for developing serious complications.

SYMPTOMS OF COVID-19

According to the World Health Organization (WHO), the main symptoms include : Dry Cough, Temperature, Tiredness/Lethargy ,Shortness of Breath A few patients may have a throbbing painfulness ,nasal clog, runny nose, sore throat or the runs, WHO says “These symptoms are usually mild and begin gradually .Some people become infected but they don't develop any symptoms and don't even feel unwell.

Here are some takeaways from the studies in the U.S. and China:

- The first symptom of COVID-19 is usually a fever. The fever is often followed a few days later by dry cough, one in which one does not cough up any phlegm, and shortness of breath.
- The symptoms begin from two to 14 days after you have been exposed to the virus. A new study from Johns Hopkins Bloomberg School of Public Health suggests a median time of about five days.
- The average duration of fever was 12 days. Ninety-nine percent of the patients studied had a fever. About 50% felt fatigued and had a dry cough, with 33% having difficulty breathing and complaining of muscle pain.
- The study showed that 85% of those with the virus only experience “phase one” of the virus’s course. Phase one encompasses the first seven days of symptoms.

Those with more critical cases of COVID-19 went on to suffer more severe symptoms that last for two more weeks, on average.

- Age is a strong risk factor for severe illness, complications and death.
- The second Wuhan study also said it observed that the average hospital stay was 10 days

Here is what having COVID-19 looks like day-by-day:

Day 1: Most of those infected - 88% - will have a fever and feel tired. Many also have muscle pain and dry cough. Some people, around 10% according to the study from China, experience nausea or have diarrhoea in the days just before the fever begins.

Day 2-4: The fever persists as does the cough.

Day 5: Breathing difficulty begins on the day 5. It is especially likely to happen if the person has a pre-existing condition or is older.

Day 6: Breathing difficulty, cough and fever persist. Some people describe chest tightening or having a feeling that a “band is around their chest.

Day 7: It is on this day that people who have been experiencing persistent chest pain or pressure, shortness of breath and bluish lips or face are admitted to the hospital.

People who are suffering less severe symptoms will likely see those symptoms begin to get better.

Day 8: According to the Chinese Centre for Disease Control and Prevention, about 15% of people with COVID-19 will develop symptoms of ARDs, or acute respiratory distress syndrome. As per the Mayo Clinic, ARDs “happens when liquid develops in the little, versatile air sacs (alveoli) in your lungs. The liquid shields your lungs from loading up with enough air, which implies less oxygen arrives at your circulatory system. This denies your organs of the oxygen they have to work

Day 10: If breathing difficulties worsen, it is on this day that patients who are in the hospital will tend to enter the intensive care unit.

Day 12: In the Wuhan study, fever finished for the vast majority on Day 12, Many despite everything had a hack.

Day 13-14: For those who will survive the virus, breathing difficulties are generally ending on these days.

Day 18: For those who do not survive the virus, the average number of days from onset of symptoms until death is 18 ½ days.

FOUR STAGES OF VIRUS TRANSMISSION

Stage 1: First appearance of the disease: It is the phase when the disease is just introduced and positive cases begin to emerge for the very first time. The presence of the ailment is confined to individuals with venture out narratives to the contaminated regions, just like the case with the couple of Indian COVID-19 cases detailed from the finish of January to mid-March. In this stage, everything is contained, as not many individuals have gotten the infection.

Stage 2: Local transmission: This stage is the point at which the nearby transmission begins to create. The infection spreads locally, through a person who either has a movement history, or the person who has come in direct contact with a previously contaminated individual. This stage ordinarily observes a tainted individual pass the infection onto his/her family, companions, neighbours, and individuals who will in general be in his/her nearby region and territory. The disease transmission in this stage can be seen by contact following, isolating people with signs, demanding screening measures, social isolating and lockdown attempts. According to the Indian Council of Medical Research (ICMR), India is presently in this phase of the novel Covid transmission.

Stage 3: Community transmission: This is where the network transmission begins to happen, making it hard to follow the wellspring of the contamination spread. The diseases are regularly passed on openly. Additionally, people who don't have a movement history to any tainted 'hotspots', or who have had no known contact with any unfamiliar source-individual, likewise begin to test positive. When people group transmission starts, it gets hard to contain the malady and to stop the chain of transmission. As the ailment springs up in arbitrary people in a network, contact tracing and isolation becomes impossible and large-scale lockdowns become extremely important.

Stage 4: Widespread outbreak: In this fourth and last phase of transmission, there is a far-reaching episode a pandemic as the quantity of cases and passing's start quickly duplicating forever. In this stage, the sickness gets endemic, for example local to the populace.

KIND OF TREATMENTS AVAILABLE FOR THE NOVEL CORONAVIRUS

Vaccines and treatment options for COVID-19 are currently being investigated around the world. There's some evidence that certain medications may have the potential to be effective with regard to preventing illness or treating the symptoms of COVID-19. Here are some treatment options that are currently being investigated for protection against SARS-COV-2 and treatment of COVID-19 symptoms.

Remdesivir: Remdesivir is an exploratory wide range antiviral medication initially intended to target Ebola. Specialists have discovered that remdesivir is exceptionally viable at battling the novel Covid in detached cells. This treatment isn't yet endorsed in people, yet two clinical preliminaries for this medication have been actualized in China. One clinical preliminary was as of late additionally endorsed by the FDA IN THE United States.

Chloroquine: Chloroquine is a medication that is utilized to battle intestinal sickness and immune system maladies. It's been being used for over 70 years and is viewed as sheltered. Specialists have found that this medication is compelling at battling the SARS-COV-2 infection in contemplates done in test tubes. In any event 10 clinical preliminaries are right now taking a gander at the expected utilization of chloroquine as a possibility for battling the novel Covid.

Lopinavir and ritonavir: Lopinavir and ritonavir are sold under the name Kaletra and are intended to treat HIV. In South Korea, a 54-year elderly person was given a blend of these two medications and had a noteworthy decrease in this degree of the Covid. As per the World Health Organization (WHO), there could be advantages to utilizing Kaletra in blend with different medications.

APN01: A clinical preliminary is set to begin soon in China to inspect the capability of a medication called APN01 to battle the novel Covid. The researchers who initially created APN01 in mid 2000s found that a specific protein called ACE2 is associated with SARS diseases. This protein likewise shielded the lungs from injury because of respiratory trouble. From ongoing exploration, things being what they are, the 2019 Covid, like SARS, additionally utilizes the ACE2 protein to taint cells in people.

Favilavir: China has endorsed the utilization of the antiviral medication failover to treat indications of COVID-19. The medication was at first evolved to treat aggravation in the nose and throat. In spite of the fact that the aftereffects of the investigation haven't been delivered at this point, the medication has as far as anyone knows demonstrated to be viable in treating COVID-19 indications in a clinical preliminary of 70 individuals.

BASIC PROTECTIVE MEASURES AGAINST THE COVID-19

Remain mindful of the most recent data on the COVID-19 flare-up, accessible on the WHO site and through your public and neighbourhood general wellbeing authority. The vast majority who become tainted experience gentle sickness and recuperate, yet it tends to be more serious for other people. Take care of your wellbeing and ensure others by doing the accompanying:

- **Wash your hands much of the time:** Regularly and completely clean your hands with a liquor-based hand rub or wash them with cleanser and water as scouring kills infections that might be on your hands.

- **Maintain Social separating:** Maintain in any event 1-meter (3 feet) separation among yourself and any individual who is hacking or wheezing for example at the point when somebody wheezes, they shower little fluid beads from their nose or mouth which may contain infection. On the off chance that you are excessively close, you can take in the beads, including the COVID-19 infection if the individual hacking has the illness.

- **Avoid contacting eyes, nose and mouth:** hands contact numerous surfaces and can get infections. When debased, hands can move the infection to your eyes, nose or mouth. From that point, the infection can enter your body and can make you debilitated.

- **Practice respiratory cleanliness:** Make sure you, and the individuals around you, follow great respiratory cleanliness. This implies covering your mouth and nose with your twisted elbow or tissue when you hack or wheeze. At that point discard the pre-owned tissue promptly. Beads spread infection. By following great respiratory cleanliness, you shield the individuals around you from infections, for example, chilly, influenza and COVID-19.

PREVENTIVE MEASURES TAKEN TO STOP SPREADING OF COVID-19

So as to contain the spread of COVID-19, some careful steps are needed to be taken by all the representatives and the Ministries/Departments. In such manner, it has been chosen to give the accompanying warning for the prosperity of Government representatives and in broad daylight intrigue.

All the Minister/Departments are encouraged to take all essential estimates, for example, :

1. Install warm scanners at the section of Government structures, as achievable. Obligatory putting of hands sanitizers at the passage of Government structures. Those discovered having influenza like indications might be encouraged to take legitimate treatment/isolate and so on.

2. Discourage, to the most extreme degree, section of guests in the workplace complex. Routine issue of guests/brief passes ought to be suspended with quick impact. Just those guests who have legitimate consent of the official who they need to meet, ought to be permitted in the wake of being appropriately screened.

3. Meetings, to the extent achievable, ought to be done through video conferencing. To limit or reschedule gatherings including enormous quantities of individuals except if vital.

4. Avoid superfluous authority travel.

5. Undertake fundamental correspondence on authentic email and abstain from sending records and archives to different workplaces, to the degree conceivable.

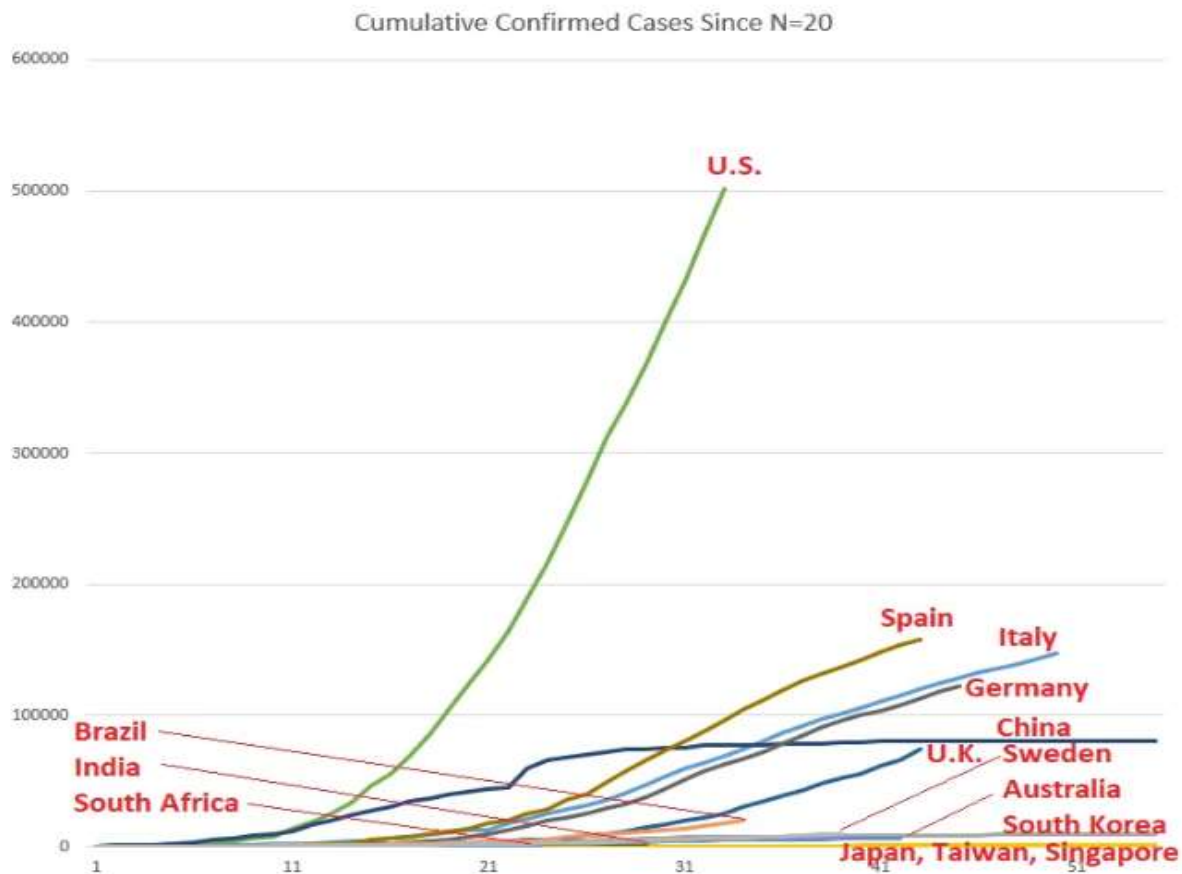
6. Facilities conveyance and receipt of dak at the section point itself of the place of business, to the extent practicable.

7. Close all exercise centres/entertainment focuses/crèches situated in Government structures.

8. Ensure appropriate cleaning and continuous sterilization of the work-place, especially of the as often as possible contacted surfaces.

9. Ensure ordinary flexibility of hand sanitizers, cleanser and running water in the washrooms.

STATISTICAL REPRESENTATION



(fig 1.1 graph as on 11th April 2020 (GMT+0))

the diagram speaks to the total development of affirmed Covid COVID19 cases beginning at around the twentieth case for every one of the accompanying nations: Brazil, Australia, South Africa, the United Kingdom, Spain, Germany, India, Taiwan, Singapore, South Korea, Japan, Italy, and the United States. For China, I needed to begin with the 548th case given the information accessible. To encourage the correlation between nations, I've arranged the nations so their twentieth case happens at the inception on the X-hub. Obviously, their twentieth cases didn't occur around the same time be that as it may, by arranging them, we can look at development rates between nations. The X-pivot numbers speak to the quantity of days since the twentieth case, aside from China. This information is current on April 10, 2020. On the chart, you can truly observe the smoothing of the bends for Spain, Italy, and Germany. Analyse the more extreme centre segment of every nation's bend to their compliment divide towards the end.

APPLICATIONS DEVELOPED FOR COVID-19

For the live following and to give different data on COVID-19 to the individuals in India, The National Informatics Centre which goes under the Ministry of Electronics and Information Technology (MeitY) has built up the 'Aarogya Setu' application. As India sinks into an all-encompassing Covid lockdown, the administration needs to guarantee it habitually seeks after contact following.

To end this, the Narendra Modi administration of India for its kin has dispatches the Aarogya Setu (ie. A scaffold to medical care) portable application on second April 2020. The application is intended to caution clients on the off chance that they have interacted with a COVID-19 positive patient, and what estimates they have to take on the off chance that that occurs.

How Aarogya Setu app helps to find out symptoms: Aarogya Setu is intended to keep a client educated in the event that he/she has encountered somebody who has tried positive. The following is done through a Bluetooth and area created social diagram,

which can show your communication with any individual who has tried positive. In the wake of introducing the application, one needs to turn on Bluetooth (you are prescribed to keep it on consistently) and Location. Then, set 'area sharing' to 'Always' (one can change this whenever later).

It has an instrument for self-testing. The customer is approached to answer different requests. If someone of the suitable reactions propose Covid signs, the information will be sent to an organization specialist. The data will by then assistance the organization make advantageous walks and start the segregation system, if major. The customer will be frightened in case someone came in closeness with Coronavirus symptoms unknowingly, tests positive. The application alerts are joined by headings on the most capable strategy to self-keep and what to do if a customer makes reactions. The data is conferred exceptionally to the organization. The application doesn't allow the customer's name and number to be openly revealed

The steps required to use the app are as follows: The means needed to utilize the application are as per the following:

1. After client's run the application, permit it to get to the gadget's area, as provoked.
2. Users will get an OTP, in the wake of entering OTP they approach the application.
3. User needs to pick sex from the choices given.
4. User needs to enter his/her complete name, age, calling
5. Users will be gotten some information about their unfamiliar travel history over the most recent 30 days. Clients need to offer suitable responses, their unfamiliar travel history, assuming any, will be coordinated with that of those who've tried positive, with assistance of ICMR (Indian Council of Medical Research) information base.

At that point, the application asks the client whether they are prepared to chip in the critical crossroads. Accepting that client's answer Yes, a 20-second evaluation test begins.

Subsequent to introducing Aarogya Setu on the telephone, it will identify other close by cell phones that additionally have the application introduced. It would then be able to make sense of the danger of disease dependent on advanced boundaries if any of these contacts is tried positive. The premise of computation which is finished utilizing Bluetooth, calculations and Artificial knowledge is the cell phone client's connection with others.

Advantages: Aarogya Setu application is accessible on both the stages Android and iOS. The application is accessible in 11 dialects English, Hindi, Telugu, Kannada, Malayalam, Tamil, Punjabi, Bengali, Oriya, Gujarati, and Marathi. The application is relied upon to be accessible in more Indian dialects soon. The advantages of utilizing Aarogya Setu application are referenced beneath:

1. The Aarogya Setu App deals with Bluetooth-based innovation and attempts to decide hazard dependent on the client's area.
2. The danger factor is additionally founded on the information accessible for that specific area.
3. It keeps the client educated in the event that he/she has encountered the positive Covid-19 case inside 6-feet closeness

Drawbacks: Internet Freedom Foundation raised worries about data assortment reason restriction, information stockpiling, institutional dissimilarity, and straightforwardness and perceptibility. These worries come in the midst of certifiable cases by specific areas of the administration and innovation volunteer. The application consistently needs its client to keep his/her GPS and Bluetooth on

HOW INDIA'S COVID-19 DEATH RATE COMPARES TO WORST HIT COUNTRIES

At present, there are 18 nations, incorporating India, with more than 14000 cases (as on 19th April 2020). India 14000. India Today Data Intelligence Unit (DIU) examinations how India tolls contrasted with the other 17 nations. Late at night (on nineteenth April 2020), the absolute number of Covid cases in India crept towards the 15,000-mark; the loss of life was approaching 500. This made India among a small bunch of nations to have revealed such countless cases.

As per the wellbeing service, by 4pm on April 18, India had 14,378 instances of Covid contaminations and 480 passing a case casualty proportion (CFR) of 3.3 percent. At present, there are 18 nations, including India, with more than 14,000 cases. India Today Data Intelligence Unit (DIU) investigations how India charges contrasted with the other 17 nations when they had comparable quantities of cases



Death CFR (as on 19th april 2020)
Source : Johns Hopkins and MoHFW

Superior to the UK, more regrettable than US: A correlation of these nations shows that India is in the centre with the ninth most noteworthy CFR. At 15,000 cases, Germany had the least Covid-19 passing. At the point when Germany had recorded 15,320 cases, it had 44 deaths (0.28 percent casualty rate). The casualty rate at 15,000 in Russia was 0.82 percent, trailed by the United States at 1.46 percent. Canada (1.64 percent) and Turkey had a CFR of under 2 percent when they had crossed the 15,000 imprints. Nations that followed are China (2.1 percent), Switzerland (2.25 percent), Portugal (2.8 percent), Austria (2.9 percent) and India (3.3 percent). The remainder of the nations had a CFR over 4 percent when they arrived at 15000 cases

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