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Analysis of Covid 19 Situations in Tumkur District of Karnatak

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Abstract

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was first identified in December 2019 in Wuhan, Hubei, China, and has resulted in an ongoing pandemic. As of September 25, 2020, more than 32.1 million cases have been reported across 188 countries and territories, with more than 981,000 deaths; more than 22.1 million people have recovered. The data was obtained from the media bulletin released by the Ministry of Health and Family Welfare Department, Karnataka. The study included total cases of 13168; in that total discharges were 9438, and deaths were 235; the prevalence of attack rate in the month of September was 260 per lakh population; in the previous month of April it was less than 1 per lakh population; the case fatality rate in April rose to 40; in May it was zero; in September it became 1.14; the recovery rate in April was less than 20; in September it was 76.

Keywords: Case fatality rate (CFR); Recovery rate (RR); complete case fatality rate (CCFR); Attack rate (AR)

Abbreviations

SARS-CoV-2 - Severe Acute Respiratory Syndrome Corona virus 2.
CFR - Case Fatality Rate.
CCFR - Confirmed Case Fatality Rate.
2019-nCoV - 2019 novel corona virus.
HCoV-19 - Human Corona Virus 19.
RT-PCR - Reverse Transcription Polymerase chain Reaction.
MERS-CoV - Middle East Respiratory Syndrome Corona virus.
MoHFW - Ministry of Health & Family Welfare.
RNA virus - Ribonucleic acid virus.
ACE2 - Angiotensin-Cnverting enzyme 2.
SDG - Sustainable Development Goals.
GDP - Gross Domestic Product.
MDR-TB - Multidrug-resistant tuberculosis.
CVD - Cardiovascular disease.
COPD - Chronic Obstructive Pulmonary Disease.

CKD - Chronic Kidney Disease.
NHM - National Health Mission.

Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus.

Most people infected with the COVID-19 virus will experience a mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illnesses.

The best way to prevent and slow down transmission is to be well-informed about the COVID-19 virus, the disease it causes, and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol-based rub frequently and not touching your face.

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow).

To prevent infection and slow the transmission of COVID-19, do the following:

Wash your hands regularly with soap and water, or clean them with an alcohol-based hand rub.

Maintain at least 1 meter of distance between you and people coughing or sneezing.

Avoid touching your face.

Cover your mouth and nose when coughing or sneezing.

Stay home if you feel unwell.

Refrain from smoking and other activities that weaken the lungs.

Practice physical distancing by avoiding unnecessary travel and staying away from large groups of people.

COVID-19 affects different people in different ways. Most infected people will develop a mild to moderate illness and recover without hospitalization.

The most common symptoms are:

Fever.

Dry cough.

Tiredness.

Less common symptoms:

Aches and pains.

Sore throat.

Diarrhea.

Conjunctivitis.

Headache.

Loss of taste or smell.

A rash on the skin or discoloration of the fingers or toes.

Serious symptoms:

Difficulty breathing or shortness of breath.

Chest pain or pressure.

Loss of speech or movement.

Seek immediate medical attention if you have serious symptoms. Always call before visiting your doctor or health facility.

People with mild symptoms who are otherwise healthy should manage their symptoms at home.

On average, it takes 5-6 days from when someone is infected with the virus for symptoms to show; however, it can take up to 14 days [1].

Know how it spreads.

There is currently no vaccine to prevent coronavirus disease 2019 (COVID-19).

The best way to prevent illness is to avoid being exposed to this virus.

The virus is thought to spread mainly from person to person.

Between people who are in close contact with one another (within about 6 feet).

Respiratory droplets produced when an infected person coughs, sneezes, or talks.

These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

Some recent studies have suggested that COVID-19 may be spread by people who are not showing symptoms.

Everyone Should.

Hands-wash the light icon.

Wash your hands often with soap and water for at least 20 seconds, especially after you have been in a public place or after blowing your nose, coughing, or sneezing.

It's especially important to wash:

Before eating or preparing food.

Before touching your face.

After using the restroom,

After leaving a public place.

After blowing your nose, coughing, or sneezing.

After handling your mask,

After changing a diaper.

After caring for someone sick.

After touching animals or pets.

If soap and water are not readily available, *use a hand sanitizer that contains at least 60% alcohol*. Cover all surfaces of your hands and rub them together until they feel dry.

Avoid touching your eyes, nose, and mouth with unwashed hands.

Avoid close contact.

Inside your home: avoid close contact with people who are sick.

If possible, maintain 6 feet between the person who is sick and other household members.

Outside your home: Put 6 feet of distance between yourself and people who don't live in your household [2].

Characteristics

Coronavirus-infected patients have many common features, such as fever, cough, and fatigue, while diarrhea and dyspnea were found to be uncommon features. Many of them reported bilateral abnormalities. The coronavirus was isolated from bronchoalveolar lavage fluid in China in 2020. It is also detected in blood samples. Till now, the coronavirus has not been confirmed in the feces or urine samples of patients.

The coronavirus was spreading from person to person through close contact via airborne droplets generated by coughing, sneezing, kissing, and smooching. So avoid these activities with infected partners and family members. The coronavirus may be transmitted through pet animals such as dogs, cats, pigs, cows, and turkeys. So avoid contact and separate them if you observe any infectious activities like diarrhea, a cold, or a fever. As per WHO and ECDC guidelines, avoid contact with sick people and also avoid markets or public places as much as possible. There is no anti-coronavirus vaccine to prevent [3].

History and Origin

The first case of the coronavirus was notified as cold in 1960. According to a Canadian study in 2001, approximately 500 patients were identified as having flu-like systems. 17-18 cases of them were confirmed to be infected with the coronavirus strain by polymerase chain reaction. Corona was treated as a simple, non-fatal virus until 2002. In 2003, various reports were published with proof of the spreading of the coronavirus to many countries, such as the United States, Hong Kong, Singapore, Thailand, Vietnam, and Taiwan. Several cases of severe acute respiratory syndrome caused by Corona and their deaths in more than 1000 patients were reported in 2003. This was a black year for microbiologists. When microbiologists started to focus on understanding these problems, after a deep exercise, they concluded and understood the pathogenesis of the disease, which was discovered as the coronavirus. But in total, 8096 patients were confirmed to be infected with the coronavirus. So in 2004, the World Health Organization and the Centers for Disease Control and Prevention declared a "state emergency." Another study report from Hong Kong confirmed 50 patients with severe acute respiratory syndrome, while 30 of them were confirmed to be coronavirus-infected. In 2012, Saudi Arabian reports presented several infected patients and deaths [1-4]. COVID-19 was first identified and isolated from pneumonia. It belongs to Wuhan, China [4].

Please mention reason for the study, identify and discuss findings of others. Consistently use two spaces after the period in a sentence.

Materials and Methods

Materials and Methods: 7.1 Source of data: The daily new cases of coronavirus (daily incidence) from April 2020 to August 2020 in the Tumkuru district were obtained from the media bulletin released by the MoHFW department; national data was extracted from the official MoHFW (India) dashboard; and Tumkuru district data for COVID-19 was extracted from the Covid bulletin dashboard. The

data were analyzed in Excel using graphs to represent the data.

Results and Discussion

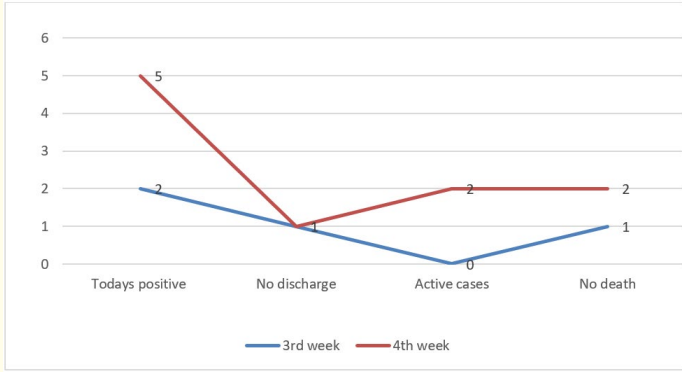

Figure 1: Covid 19 cases April month.

The above graph shows that April today's positive cases increased from the 3rd week to the 4th week, while the number of discharge cases remained the same in the 3rd and 4th weeks. In the 3rd week, there were no active cases, and in the 4th week, the number of deaths slightly increased compared to the 3rd week.

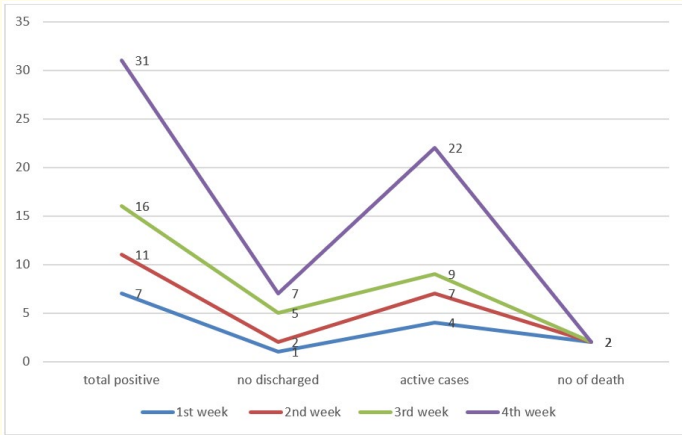

Figure 2: Covid 19 cases in May month.

The above graph shows that in May, total positive cases increased the most in the 4th week, and the number of discharge cases was also high compared to the 1st week to the 4th week. Active cases also increased in the 4th week, but death rates did not increase as much compared to the 1st week to the 4th week.

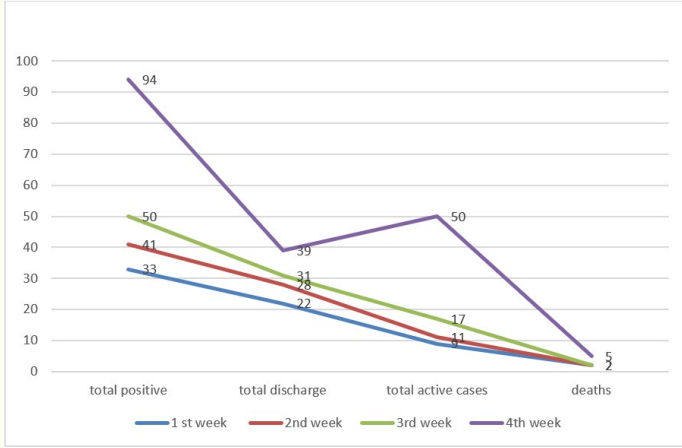

Figure 3: Covid 19 cases in June month.

Based on the graph above, the total number of positive COVID-19 cases peaked in the fourth week of June. There was also a slight increase in the number of discharges and active cases during the fourth week, compared to the first and third weeks.

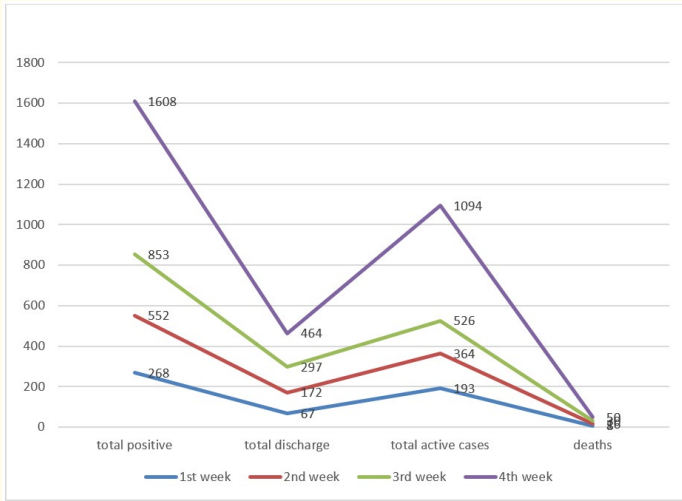

Figure 4: Covid 19 cases in July month.

The above graph shows a significant increase in total positive cases and total active cases in July 4th week compared to previous weeks, with the highest numbers at 1,608 and 1,094, respectively. Total discharges and deaths were also high in the 4th week.

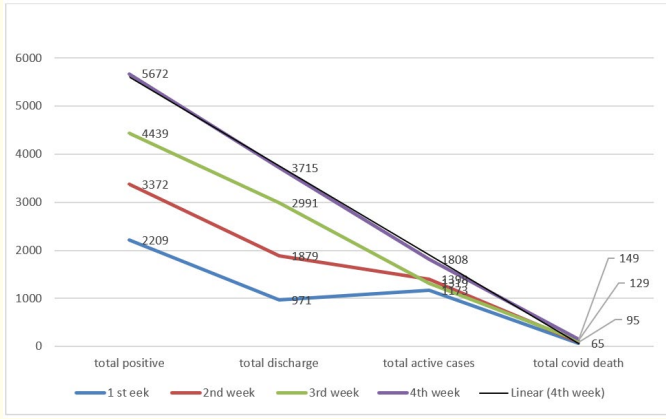

Figure 5: Covid 19 cases in August month.

The above graph shows that total positive cases in August were highest in the 3rd and 4th weeks (from 55672 to 4439). The number of discharged cases was also high in the 3rd and 4th weeks. Additionally, total active cases increased during these weeks, and total COVID-19 deaths also saw an uptick.

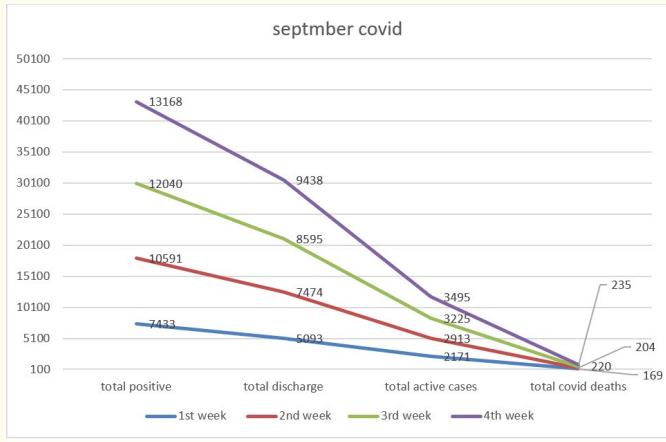

Figure 6: Covid 19 cases in September month.

The above graph shows that in September, total COVID-positive cases were highest in the 3rd and 4th weeks (12040 to 13168), total discharge cases also increased in the 3rd and 4th weeks of September, and total active cases also increased in the 3rd and 45th weeks.

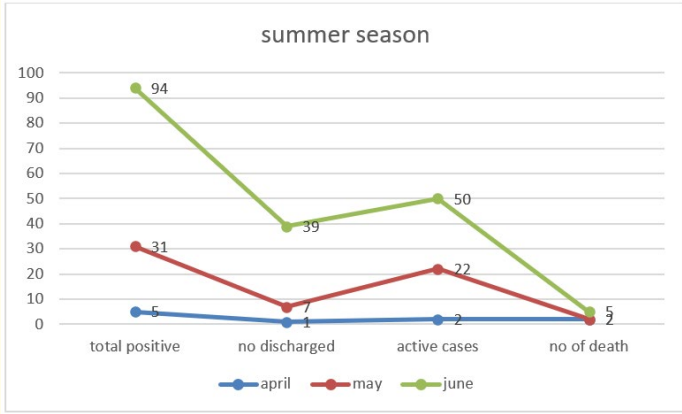

Figure 7: Covid 19 cases in the summer season.

The above graph shows that summer season total positive cases were highest in June (94), total discharge cases were also highest in June (39), active cases were also highest in June (50) compared to the previous month, and the number of death cases did not increase much compared to the previous month.

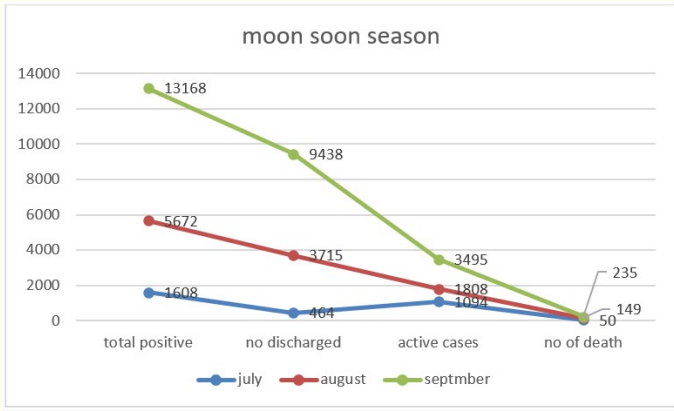

Figure 8: Covid 19 cases in the monsoon month.

The above graph shows that moon-soon total COVID-positive cases increased in September (13168), the number of discharge cases also increased in September (9438), and active cases also increased in September (3495) compared to the previous month.

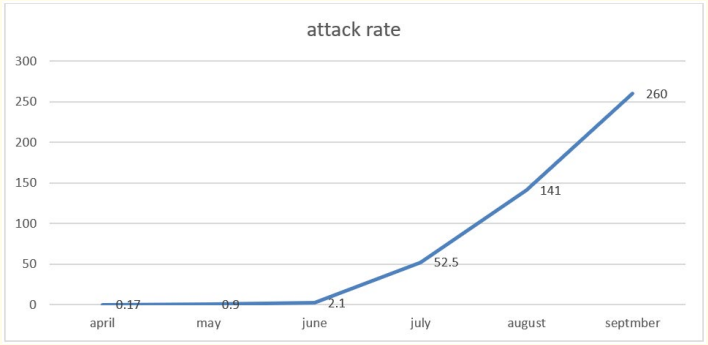

Figure 9: Covid 19 attack rate.

The above graph shows that the attack rate of COVID is 19. In August and September, the COVID attack rate increased. And lowest covid attack rate in the month of April and may (0.17 to 0.9).

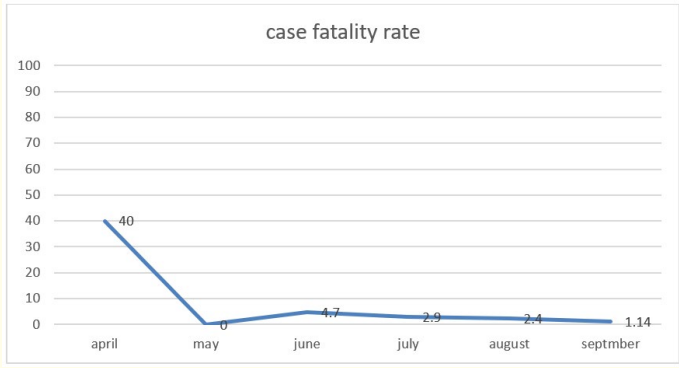

Figure 10: Covid 19 case fatality rate.

The above graph shows the case fatality rate of COVID-19. In April, COVID-19 case fatalities were the highest, while in May, there were zero fatalities. In September, the case fatality rate was the lowest at 1.14. In August, July, and June, there was a slight increase in the number of cases.

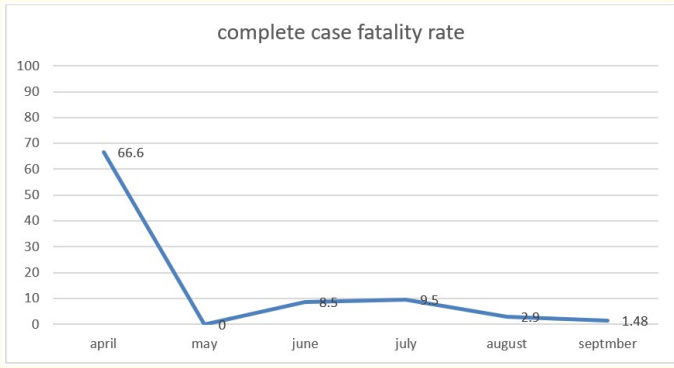

Figure 11: Covid 19 complete case fatality rate.

The above graph shows that the COVID-19 complete case fatality rate is highest in April (66.6%) and lowest in September and August (2.9% to 1.48%). In May, there was a zero complete case fatality rate.

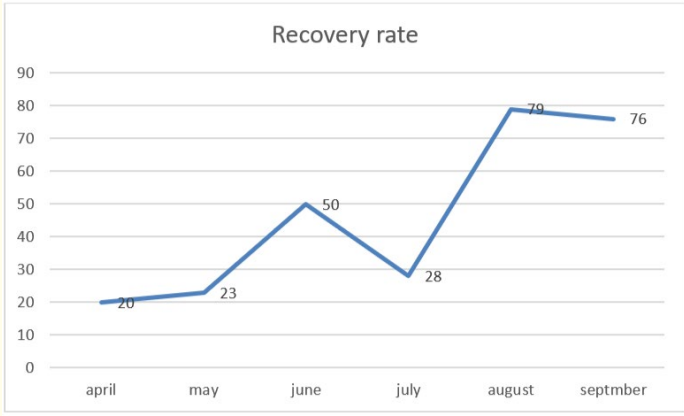

Figure 12: Covid 19 recovery rate.

The above graph shows the COVID-19 recovery rate. In the month of August, the highest recovery rate was 79%. In the month of September, there was a slight decrease in the recovery rate to 76%. The lowest recovery rates were in the months of April, May, and July. In the month of June, the recovery rate was 50%.

In our study of COVID-19 trend analysis in the Tumkuru district, the first COVID-19 cases started slightly and increased in April. In May and June, COVID-19-positive cases remained below 100, with a low death rate and an increase in recovery cases. In July, the number of cases increased to more than 1,000. In August, cases rose to 5,000. In September, cases surged to more than 13,000. In July, August, and September, recovery and death rates also increased.

The epidemiological trends of coronavirus disease in China were studied through online data collection by Billin Chen et al., with the article published on May 29, 2020. From January 23, 2020, to February 6, 2020, COVID-19 cases increased from 835 to 31,211. By February 20, total cases had reached 75, 993 [5].

In our study analysis of COVID-19, the case fatality rate increased in April to 40%, compared to all other months. In May, there were no fatality cases. In June, the case fatality rate was nearly 5%, followed by less than 3% in July and August. In September, the rate was very low.

An article titled "The COVID-19 Mortality Risk for Older Men and Women" by N. David Yanez et al., published in 2020, reported that over six weeks of data, there were 178,568 COVID-19 deaths from a total population of approximately 2.4 billion people. Age and sex were associated with COVID-19 mortality [6].

Conclusion

Our analysis of COVID-19 patterns in Tumkuru district concludes that there was a notable rise in cases from April to September, with the largest spike occurring in September. While the death rate changed with time, the recovery rate also improved, which is consistent with general epidemiological trends observed in studies conducted in China and other regions.

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