

Review Article

COVID-19: AN UPDATE ON THE EPIDEMIOLOGICAL STATUS OF SOUTH INDIA

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ABSTRACT

Global emergency due to Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-COV-2) and associated COVID-19 necessitates an engaged, integrated, interdisciplinary, and rapid response from the scientific community. India has had 4-4 million cases of COVID-19, the second most in the world after the USA, with 75,062 officially confirmed deaths from the disease as of Sept 10, 2020. Total of 27,688,740 confirmed cases and 8,99,315 death cases were reported as per WHO on Sept 10, 2020 at 10.28 AM, CEST. The United States of America, India, Brazil and Russia recorded the highest cases in the world. We describe here, the outbreak of COVID-19 among the five major South Indian states and the data were collected from various Government authorised websites and the same were comparatively studied among five different states from March to July 15, 2020. In south India, Tamil Nadu reports the highest cases when compared to other states and the least cases were found to be among the state of Kerala as per the study period.

Keywords: COVID 19, South India, Comparative study

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Speedy peer review was done as the subject of the manuscript was related with pandemic.

INTRODUCTION

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-COV-2), a novel Coronavirus causing COVID-19 disease, primarily affects the respiratory system of the human body and causes pneumonia which severely damages the alveolar wall covered by a hyaline membrane and epithelial cells [1, 2]. SARS-COV2 identified from a cluster of patients with severe pneumonia and the patients were considerably associated with Huanan South China seafood market in Wuhan, Hubei Province, China in December 2019 [3]. According to the International Committee on Taxonomy of virus, Coronavirus comes under the family of coronavirinae, order Nidovirales [4, 5]. Coronavirus is spherical, enveloped, single-stranded RNA genome, covered with glycoprotein and its size ranges from 26 to 32 kb in length, 60-120 nm in diameter. Since the genome of novel SARS-CoV-2 was 95% homology to Bat Virus, the scientific community believes it originated from Bat. Still, the origin was found to be a mystery and yet to study from numerous other animal genomes [6, 7]. The similarity between Pangolin CoV and SARS-CoV-2 is about 91% [8].

COVID-19 was reported as a pandemic by the WHO on March 11, 2020 [9]. Around 216 countries were affected by the novel coronavirus. Transmission of coronavirus has been carried out by the direct contact with the infected droplets. It affects all age groups, but the prevalence was found to be among people with underlying medical complications such as diabetes, cardiovascular disease, and chronic respiratory disorders. Symptoms of COVID-19 include coughing, sneezing, pneumonia, fever, lung infection which further cause damage to the kidney, heart liver. SARS-CoV-2 can be transmitted either directly by maintaining contact with an infectious person or indirectly by contact with the objects [10, 11].

The study was aimed to report the epidemiological status of COVID-19 among the five major states of South India, such as Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, and Kerala. Epidemiological status of COVID-19 patients till July 15, 2020, was taken from Indian Government official websites (<https://www.covid19india.org/>). The same was used for comparative study among the five major states of south India.

Methods: data collection: search criteria

The study utilized all the data available from the Indian Government and State Government official portal for COVID-19 daily updates,

where the official count on the number of cases based on RT-PCR based VTM test were updated on day to day basis under the repository of Media bulletin, which were collected and used as source data for the current study. Hence the data given in the study completely available from the public source.

RESULTS AND DISCUSSION

COVID19-Trends in Tamil Nadu

In Tamil Nadu, the first SARS-COV-2 case was recorded on March 7, 2020, and the consecutive cases were reported on March 18 and 19 of 2020. The first death was reported in Tamil Nadu on March 29th, 2020. Till June 30, 2020, Tamil Nadu recorded 90,167, cases were found confirmed, 50074 cases were recovered and 1201 cases were found deceased. Among 32 districts of Tamil Nadu, Chennai reports the highest cases of around 58312, followed by which Tiruvallur reports 3,830 cases, 2557 cases have been registered by Madurai, Kanchipuram reports 1977 cases till June 30. Least cases were found in Dharmapuri districts registers around 81 cases, followed by Nilgiris registered 89 cases and around 99 cases were observed in Namakkal till June 30, 2020. From July 1st to 15th, about 61,653 confirmed cases, 52,236 recovered cases, 8,451 active cases, and 966 death cases have been reported. Specifically, in July month the cases have been tremendously increased. Lockdown had been implemented by the Tamil Nadu Government from June 20, 2020, to June 30, 2020, in the major hotspots including Chennai, Tiruvallur, Kanchipuram. The effect of lockdown had been observed in July specifically in Chennai records 22,649 confirmed cases. Tiruvallur records 3,743 and 4,774 cases had been recorded by Madurai, around 3,332 cases had been registered by the Chengalpattu district. Till July 15th, 2020 least cases had been registered by Karur counts 70 confirmed cases. Till June 30, 2020, a total of 92,514 male 59,283 females and 23 transgender had been affected by COVID-19. Around 17,36,747 tests had been taken till July 15th, 2020. COVID 19 cases in Tamil Nadu were collected from the portal Media bulletin, Government of Tamil Nadu [12].

The increased number of cases not only due to spread rate among the population, the state government having excellent diagnostic setup among Tamil Nadu, where the number of a testing facility is high in the country having 115 labs totally among which 58 Govt labs and 57 private labs continuously doing vigorous testing among overall Tamil Nadu state leads to the identification of both

asymptomatic and symptomatic cases, which may reduce the community spread among the highly populated cities and districts. 22,87,334 tests were conducted till July 25, 2020, among which

2,06,737 were considered to be positive. The capital city of Tamil Nadu, Chennai records below 2,000 cases every day, which has to be contained further.

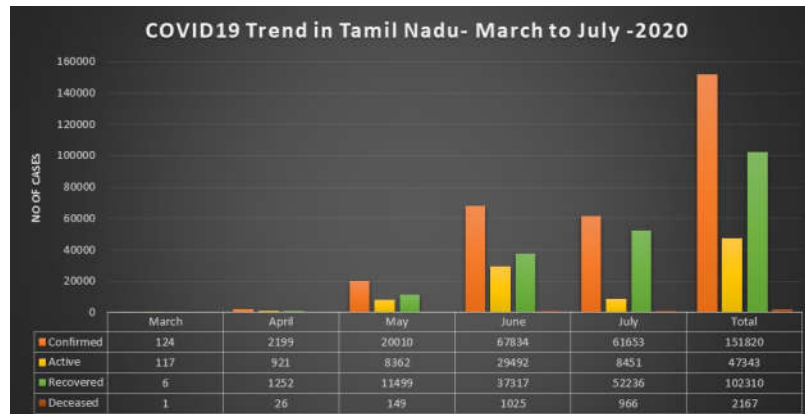


Fig. 1: Graphical representation of COVID-19 cases among Tamil Nadu from March to July 2020

COVID19 Trends in Andhra Pradesh

First COVID 19 cases were reported on 12th March 2020 in Andhra Pradesh and the first death was reported on April 3, 2020. Totally 14,595 positive cases 6,511 recovered cases were observed and 187 death were reported till June 30, 2020. Among 13 districts of Andhra Pradesh, Kurnool districts report highest cases of about 1995, followed by which Anantapur reports 1571 cases, Krishna counts around 1467 cases, Guntur records around 1349 cases. And finally, the least cases were reported by Srikakulam of about 63 cases,

Vizianagaram records 159 cases till June 30, 2020. From July 1, 2020, to 15th, 2020. 20856 confirmed cases 11,867 recovered cases 8,724 active cases and 265 death cases were recorded over the state of Andhra Pradesh. Kurnool district counts 2,231 cases, followed by which 2,242 cases were reported in Anantapur, 2,475 new cases found in Guntur, East Godavari displays 2231 cases. Least cases were observed in Vizianagaram of around 722 cases. 12,17,963 was taken till July 15th, 2020. COVID 19 details in Andhra Pradesh were collected from the portal Daily Bulletin, Government of Andhra Pradesh [13].

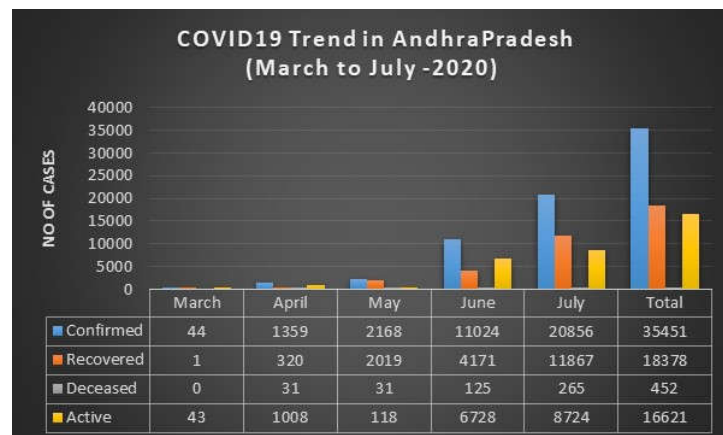


Fig. 2: Graphical Representation of COVID-19 cases among Andhra Pradesh from March to July 2020

COVID19 Trends in Kerala

In India, initial COVID 19 cases were recorded in Kerala on January 30, 2020, and the first death was reported on 29th March 2020. Around 4443 cases were found confirmed, 2304 cases were found recovered and 25 cases have been deceased till June 30, 2020. Among 14 districts of Kerala, the highest active cases were observed in Palakkad which registers 529 cases. Malappuram district counts 501 confirmed cases and the least confirmed cases were registered on Wayanad reports 95 cases, followed by which Idukki reports 108 cases. 5111 confirmed cases, 2330 recovered cases, 2768 active cases, and 11 death cases were found from July 1st, 2020 to 15th, 2020. Thiruvananthapuram counts 952 confirmed cases in July month, 2020. Malappuram reports 612 cases. Least cases were

observed in Wayanad of about 105 cases, 158 cases were found in Idukki. Media Bulletin, Government of Kerala was used to aggregate the COVID 19 details especially in Kerala [14].

COVID19 Trends in Karnataka

The first corona case was reported on 9th March 2020 in Karnataka and the first death was reported on March 13, 2020. Completely, 9,02,026 tests were taken until July 15th, 2020. 15242 confirmed, around 7920 recovered and 246 cases were found deceased till June 30, 2020. 9464 male and 5777 females were found positive till June 30, 2020. Karnataka reports a 1.6% fatality rate until June 30, 2020. Among 30 districts of Karnataka, Bengaluru urban registers the highest confirmed cases of about 4,555, which is further continued

by 834 cases recorded by Ballari, Kalaburagi. Counts 1436 cases. Chitradurga reports 62 cases that were found least of all districts. Around 47 cases were registered by Kodagu. 32011 confirmed cases, 10547 recovered cases, and 687 death cases were reported from July 1st, 2020 to July 15th, 2020. The tremendous increase in the

cases had been observed in Bengaluru urban which counts 18,387 confirmed cases, 1779 new cases were found in Dakshina Kannada and 1,189 new cases were observed in Ballari. 71 least active cases were recorded by Chitradurga and 90 cases were counted by Chikmangalore [15].



Fig. 3: Graphical representation of COVID-19 cases among Kerala from January to July 2020

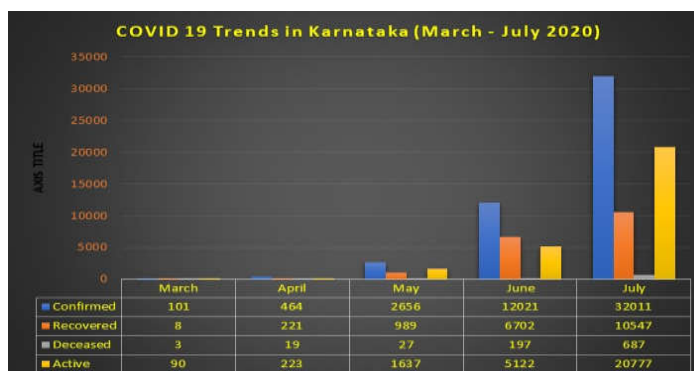


Fig. 4: Graphical representation of COVID-19 cases among Karnataka from March to July 2020

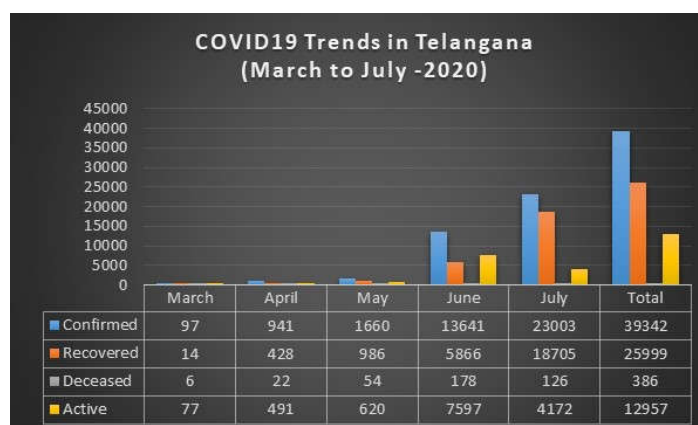


Fig. 5: Graphical representation of COVID-19 cases among Telangana from March to July 2020

COVID19 Trends in Telangana

First COVID 19 cases were observed in Telangana on March 2, 2020, and the first death was reported on 29th March 2020. 16339 confirmed cases, 7294 recovered cases, and 260 cases were found deceased till June 30, 2020. Among 33 districts of Telangana, the

highest cases were registered in Hyderabad of about 13,410 cases, followed by Ranga Reddy counts 1118 cases and the least cases were observed in Narayanpet of about 3 cases, 6 cases were reported by Wanaparthy till June 30, 2020. From July 1st, 2020 to July 15th, 2020, Telangana counts 23003 confirmed, 18705 recovered cases, 4172 active cases, and 126 death cases till July 15th, 2020. Hyderabad

counts about 15,710 cases in July month, followed by which Ranga Reddy reports 1,934 cases. Least cases were observed in Narayanpet of about 24 cases. 2,08,666 tests taken. COVID 19 details in Karnataka and Telangana were aggregated using the Government official websites (<https://www.covid19india.org/>) [15].

Among all the states of South India, Tamil Nadu reports the highest cases especially in July month, 61653 confirmed cases were observed, whereas Andhra Pradesh reports 20856 cases, Kerala registers 5111 cases, 32011 cases have been observed in Karnataka and Telangana registers 23003 cases.

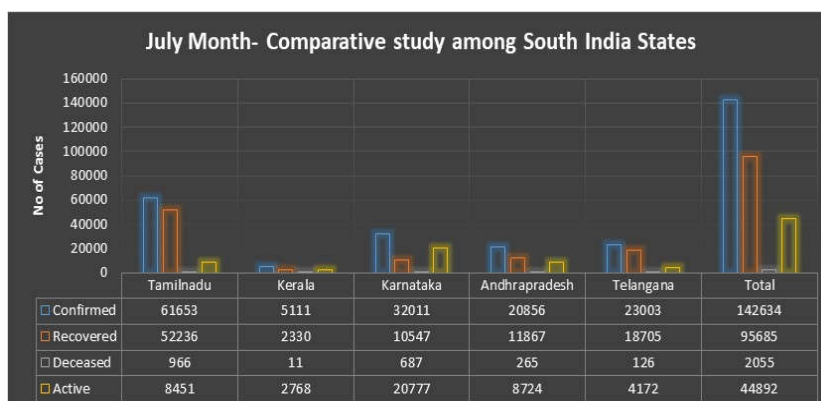


Fig. 6: Comparative study among the South India states during July Month

CONCLUSION

As on July 24th, 2020, COVID-19 has been tremendously increasing worldwide, globally around 15,296,926 confirmed cases and 6, 28,903 death were registered [16]. India recorded 13,85, 494 confirmed cases, and 32,096 deaths were reported till July 25, 2020. Despite Health care development and facility among South India are better compared to other parts of India, Tamil Nadu hits the highest cases of nearly 1,99,749 till July 24th, 2020. Despite Government actions, as a citizen, it is our responsibility to follow the rules implemented by the Indian Government to enforce the better action against COVID-19 such as social distancing, wearing masks, avoid social gatherings, avoid unnecessary travel in public transportation, and avoid non-emergency medical surgeries or visits to the hospital to avoid nosocomial infections. In order to control this pandemic situation, more than 150 countries globally involved in vaccine production. As a citizen, we should be responsible to educate and make aware of our current and future generation to combat the pandemic situation.

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AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

CONFLICT OF INTERESTS

Declared none

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