

COMPARISON OF PERCENT POSITIVITY OF TWO DISTRICTS OF KASHMIR DURING THE 3RD COVID WAVE.

Abstract:

Background: SARS CoV-2 virus is the infectious agent that causes COVID-19 infection. The majority of those who contract this virus experience mild to moderate respiratory illnesses. This infection affected the entire population of India. The infection ratio (IR) of COVID-19 can be calculated by comparing the % positivity of various districts in a State/UT, which may prove crucial for developing policies and in taking necessary interventions for future.. **Objective:** The present study aimed to investigate the district level variation of COVID-19 infection in Kashmir during December 2021 and January 2022. The present study also gives the percent positivity of the COVID-19 infection at the various district levels. **Data and methods :** This study was retrospective in nature. The data was collected from COVID-19 lab of SKIMS Medical college and hospital (SKIMS MCH), Bemina and analysed. **Results:** The total samples received in the month of December 2021 and January 2022 during 3rd COVID-19 wave from 2 districts in SKIMS MCH, Bemina, Srinagar was 56279. Out of these samples, 34141 was from district Kupwara and 22138 was from district Srinagar. The percent positivity for both months of December and January was more in district Srinagar i.e 11.4% and 3.8% respectively as compared to district Kupwara which was 8.7% and 2.9% respectively. From district Srinagar, the samples were received from 4 different regions i.e, Batmaloo, Tourist reception centre (TRC), SR gunj and Khanyar. The percent positivity in the month of December 2021 for various regions from district Srinagar i.e, Batmaloo, TRC, SR gunj and Khanyar was 4.1%, 5.2%, 2.9% and 2.8% respectively. The percent positivity in the month of January 2022 for various regions from district Srinagar i.e, Batmaloo, TRC, SR gunj and Khanyar was 12.6%, 21%, 7.9% and 8.0% respectively. **Conclusion:** The district Srinagar showed more cases of COVID-19 infection as compared to district Kupwara. This study provided the crucial information for the policies discourse and giving special attention to the vulnerability of the highly urban area.

Keywords: 3RD COVID WAVE, SARS-COV-2 virus, COVID-19 infection

Introduction:

"COVID-19 is a respiratory disease caused by SARS-COV-2 virus, which belongs to a large family of the viruses known as Coronaviruses. This virus is thought to spread through droplets from person to person, when an infected person sneezes, talks or coughs".¹ "In terms of the total number of infected patients of COVID-19, India has ranked second globally".² "In the initial three months from January to March 2020, the rate of spread of the disease was slow, possibly because of the early nation wide lock down",^{3,4,5} "the travel protocols and the quarantine facilities made by the union and the state governments".^{6,7} "Since April 2020, there was a rapid increase in the number of confirmed COVID-19 cases in many districts of Kashmir. Over 50,000 of cases were recorded every day in India from August 2020. In September-October 2020, after reaching a peak of COVID-19 infection, the new cases have been steadily declining in India. Globally, India has recorded a relatively high recovery rate and the lowest fatality rate".⁸ "India may have to undergo a higher burden of disease due to other demographic factors, despite of having a young age structure with less susceptibility to COVID-19 related deaths".^{9,10} "The demographic factors includes the enormous population size, high population density, higher percentage of people living in poverty, lower levels of per capita public health infrastructures and high prevalence of co-morbid situations".¹¹

"There are research evidences that the increase risk of the transmission of second wave of COVID-19 is almost double of the first peak".¹² "Many of the factors are responsible for making the second wave of COVID-19 more devastating, such as effect of testing rate, healthcare infrastructure and transmission rate".¹³ "COVID-19 infection has widely varied among the different states of the country, like any other demographic and health indicators".^{14,15} It is observed that the COVID-19 has been spreading rapidly in the densely populated urban states of the country like: Delhi, West Bengal, Maharashtra and Tamil Nadu. By using the demographic information and infrastructure characteristics, some of the recent studies have computed the

composite indices to rank the districts in terms of their COVID-19 vulnerabilities,^{16,17,18} which will decrease as the districts socioeconomic indicators improve.

It has been seen that the COVID-19 is more prevalent in cities and towns than in rural areas or the hilly regions.¹⁹ Hence, it is important to compare the relationship patterns between the household infrastructural characteristics, district's socioeconomic status and the COVID-19 infection ratio.

The aim of the present study is to find out the district level variation in COVID-19 during December 2021 and January 2022 and to investigate the percent positivity of COVID-19 infection ratio in Kashmir at district levels. The identification and the percent positivity is helpful in giving the proper interventions and framing the health policies.

Methods:

The nature of this investigation was retrospective. The data was collected from COVID-19 lab of SKIMS Medical college and hospital (SKIMS MCH), Bemina and analysed. The total samples received in the month of December 2021 and January 2022 during 3rd COVID-19 wave from 2 districts in SKIMS MCH, Bemina, Srinagar was 56279.

Results: The new cases of the Coronavirus have been seen every day in India since March 14, 2020. Over 8.1 million confirmed cases are reported as of October 31, 2020 in India. Out of these, 122,154 were fatal and around 7.4 million patients' recovered.²⁰ During the study period, the COVID-19 cases were peak in 15th December 2021 to January 2022, and then it started declining. The total number of samples received during this period is mentioned in table 1. The percent positivity of district Kupwara and district Srinagar in the month of December 2021 January 2022, is shown in table 2. It also presented District level variations in COVID-19 from 1st December 2021 and 31st January, 2022, which is shown in table 3 and table 4. Of all districts, TRC has the highest number of cases with percent positivity of 21% by the end of January 2022 and Khanyar has the lowest number of cases with percent positivity of 2.8% by the end of December 2021. By the end of December 2021, five major urban areas of district Srinagar contain about 3.8% percent positivity of the confirmed cases (Batmaloo 4.1%, TRC 5.2%, SR gunj 2.9% and Khanyar 2.8%), shown in table 3. However, by the end of January 2022, a new pattern has been observed when about 11.4% percent positivity of the COVID-19 confirmed cases consists of five major regions of district Srinagar (Batmaloo 12.6%, TRC 21%, SR gunj 7.9% and Khanyar 8.0%), shown in table 4. However, by the end of December 2021, district Kupwara contributed 2.92% positivity of covid cases. About 8.7% positive cases of COVID-19 has been confirmed from district Kupwara by the end of January 2022.

Table 1: Total samples received-

DISTRICT	December 2021	January 2022	TOTAL
Kupwara	13525	20616	34141
Srinagar	10914	11224	22138
Total	24439	31840	56279

Table 2: The percent positivity of district Kupwara and Srinagar in the month of December 2021 and January 2022-

District	Month	Positive	Negative
Kupwara	Dec 2021	8.7%	91.2%
	Jan 2022	2.9%	97%
Srinagar	Dec 2021	11.4%	88.5%
	Jan 2022	3.81%	96.1%

Table 3: The percent positivity of four different regions from district Srinagar in the month of December 2021

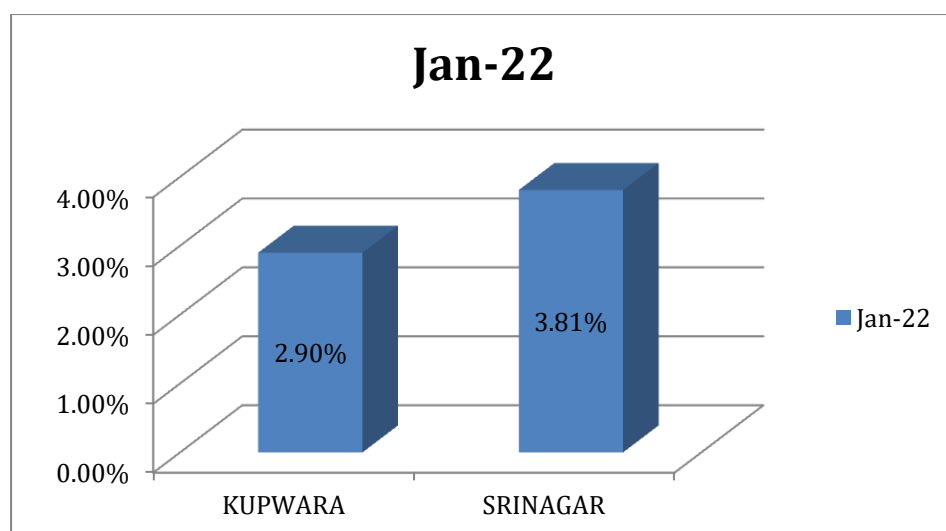
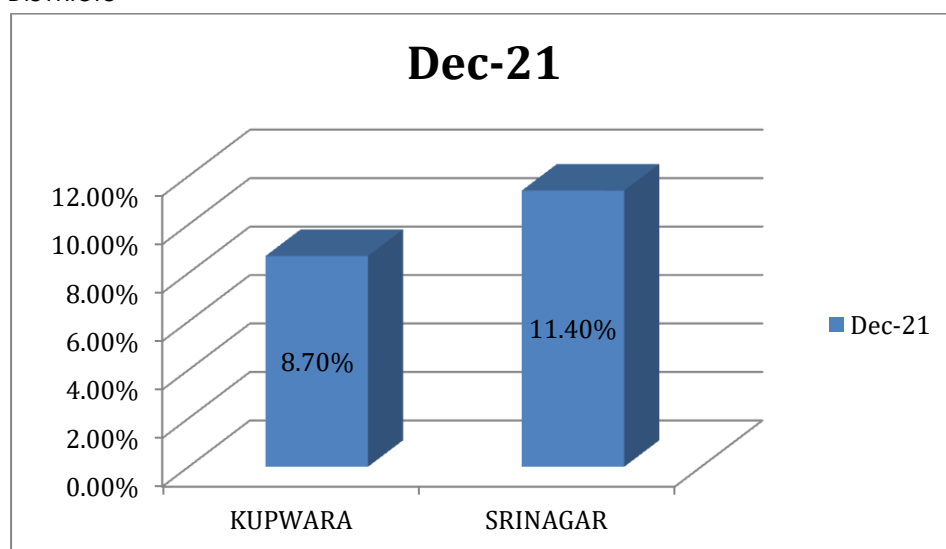
Regions	Total samples received	Positive	Negative
1) Batmaloo	5705	234 (4.1%)	5471 (95.8%)
2) TRC	1321	69 (5.2%)	1252 (94.7%)

3)SR Gunj	2499	74 (2.9%)	2425 (97%)
4)Khanyar	1389	39 (2.8%)	1350 (97.1%)
Total	10914	416 (3.81%)	10498 (96.1%)

Table 4: The percent positivity of four different regions from district Srinagar in the month of January 2022

Regions	Total samples received	Positive	Negative
1)Batmaloo	3528	447 (12.6%)	3081 (87.3%)
2)TRC	1689	356 (21%)	1333 (78.9%)
3)SR Gunj	3177	251 (7.9%)	2926 (92%)
4)Khanyar	2830	227 (8.0%)	2603 (91.9%)
Total	11224	1281(11.4%)	9943 (88.5%)

COMPARISON OF POSITIVITY RATES IN DECEMBER 2021 AND JANUARY 2022 OF KUPWARA AND SRINAGAR DISTRICTS



Discussion : India ranked second after the US, in terms of the total number of confirmed cases. More than eight million of COVID-19 cases were reported as of October 31,2020. The present study gave the information about the district level variations in COVID-19 cases from 1st December 2021 to January 31,2022. During the study period, the spread of COVID-19 has been increasing over the time. India imposed world's strictest nationwide lockdown beginning from 25th March, 2020²¹. But,India was the third leading country after USA

and Brazil's identified cases, as of 10th April, 2021.²² India has been experiencing a huge cases of COVID-19, like many others parts of the world.^{23,24,25}

The second wave of COVID-19 has started in the middle of March 2021 and recorded the highest number of cases^{24,25} about 144,829 as on April 2021. In India, the major affected states were Maharashtra, Delhi, West Bengal, Tamil Nadu, Kerala, Karnataka and Jammu & Kashmir.^{21,23,}

Conclusion:

In this study, the COVID-19 pandemic was traced across Kupwara and Srinagar districts. It was seen that districts with higher population density showed increased COVID-19 risks. This pandemic have created a huge impact on health and economy globally, including India. To formulate policies and interventions, a proper spatial distribution of the disease and its correlates is needed.

In this study, we have seen that the COVID-19 infection ratio (IR) is significantly correlated to the population density and urban residence. The role of the government is difficult in controlling the pandemic in highly populated areas and also to maintain the social distancing in such areas. To control the spread of COVID-19 infection, we need to ensure the health and hygiene related facilities such as maintaining the quarantine centres, public health care institutions and improving public distribution system. To classify patients with asymptomatic conditions, more tests are required. There is a need to improve the healthcare facilities and human resources (doctors, nurses, frontline workers). There are few limitations in our study like the patients level of information (age, sex, comorbidities) are unavailable. Therefore, in this study the district level determinants are analyzed instead of individual level. Finally, we have correlated the percent positivity of the number of confirmed cases at the district level only which will help to frame the health policies and appropriate interventions.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

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