Original Research Article

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

Abstract:

Background: COVID-19 is affecting the entire population of India. Understanding district level correlates of the COVID-19's infection ratio (IR) is essential for formulating policies and interventions. **Objective:** The present study aims 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** : It was a retrospective study. The data was collected from covid lab of Skims medical college and hospital,bemina. **Results:** The total samples received in the month of December 2021 and January 2022 during 3rd covid wave from 2 districts in Skims MCH,bemina 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,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% and2.8% 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 COVID-19 infection was found to be more in district srinagar as compared to district kupwara.The study findings provide crucial information for policy discourse, emphasizing the vulnerability of the highly urban area.

Keywords : SARS COV 2, COVID 19, COVID 19 IN KASHMIR

Introduction: Coronavirus disease 19 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus, which is a member of a large family of viruses called coronaviruses. These viruses can infect people and some animals. The virus is thought to spread from person to person through droplets released when an infected person coughs, sneezes, or talks [1]. India ranked second globally in terms of the total number of infected patients of COVID-19 [2]. The rate of spread of the disease was slow in the initial three months (January to March 2020) from the first outbreak in Kerala in January 2020, possibly because of the early nationwide lockdown [3–5]; and targeted efforts by the union and state governments on quarantine facilities and travel protocols [6,7]. There was a paid increase in the number of confirmed COVID -19 cases in many districts since April 2020. India has recorded over 50,000 cases every day from August 2020. After reaching a peak of COVID-19 infection in September- October 2020, new cases have been steadily declining in India. This biweekly peak reduced from 12,44,430 (12–25 September, 2020) to 5, 97,281 (24 October- 5 November, 2020). Interestingly, India has a relatively high recovery rate and the lowest fatality rate globally [8]. Despite India's advantage of having a young age structure with less susceptibility to COVID-19 related deaths [9], India may have to undergo a higher burden of disease due to other demographic factors [10] such as the enormous population size, high population density, higher percentage of people living in poverty, lower levels of per capita public health infrastructure, and a high prevalence of co-morbid situations [11]. Research evidence that the transmission of second wave of COVID- 19 increase risk almost double of the first peak [12]. There is various factor associated with second wave more devastating such as–transmission dynamics, effect of population density, effect of testing rate and healthcare infrastructure [13]. Like any other health and demographic indicator, COVID-19 infection varies widely among the different states of the country [14,15]. However, the geographical pattern of the COVID-19 infection rate' does not coincide with the patterns of demographic and health indicators such as the under-five mortality rate or nutritional status. COVID-19 has been spreading rapidly in the urban areas, especially in states with megacities with densely populated urban slums like Delhi, Maharashtra, Tamil Nadu, and West Bengal.. Some recent studies have computed composite indices to rank the districts in terms of their COVID-19 vulnerabilities using demographic information and infrastructure characteristics [16-18]. While such analyses help district-level planning and prioritization, they are based on

the assumption that vulnerability will decrease as the districts' socioeconomic indicators improve. However, such an inverse relationship may not be applicable in the context of COVID-19; for instance, a higher percentage of the urban population may indicate a higher socioeconomic status of the district population in a nonCOVID situation and may be linked with an improved health outcome. However, it may be positively correlated with the spread of COVID-19. COVID-19 is more prevalent in cities and towns than in rural areas or hilly regions [19]. Therefore, it is imperative to unfold the empirical relationship patterns between the district's socioeconomic and household infrastructural characteristics and the COVID-19 infection ratio. To the best of our knowledge, no such previous study has been conducted on COVID-19 in India. The aim of the present study is of two-folds, first to investigate the district level variation in COVID-19 during December 2021 and January 2022 and, secondly, to investigate the district level percent positivity of COVID-19 infection ratio in kashmir. Identification of such correlates is crucial for framing health policy and appropriate intervention.

Materials and methods

It was a retrospective study.The data was collected from covid lab of Skims medical college and hospital,bemina during December 2021 and January 2022.

Results- India has been reporting new cases of the coronavirus (COVID-19) every day since March 14, 2020. India reported over 8.1 million confirmed cases as of October 31, 2020. Out of these, around 7.4 million patients recovered, while 1 22,154 were fatal [20]. In India, the average bi-weekly new confirmed cases rose 677 times (from 63 to 42,663), the average recovered points increased 10,729 times (from 5 to 53,647), the average infected patients increased 449 times (from 63 to 28,256). During the study period, the COVID-19 cases were in peak 15th december 2021-25th january 2022, and then it started declining.The total nuber of samples received during this period is mentioned in table 1.The percent positivity of district kupwara and district srinagar in the month of dec 2021 jan 2022, is shown in table 2. It also presented District level variations in COVID-19 from Ist december 2021 and 31st januay, 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 jan 2022 and khanyar has the lowest number of cases with percent positivity of 2.8% by the end of dec 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, a new pattern has been observed by the end of jan 2022, 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 dec 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 jan 2022.

Table 1: Total samples received-

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

Table 2: The percent positivity of dist kupwara and dist srinagar in the month of dec 2021 and jan 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 dec 2021-

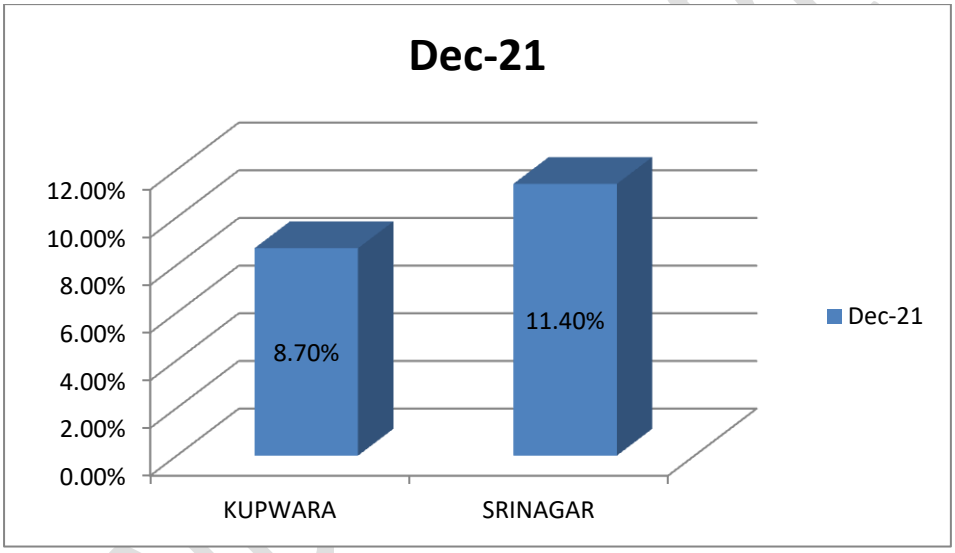
Regions	Total samples received	Positive	negative

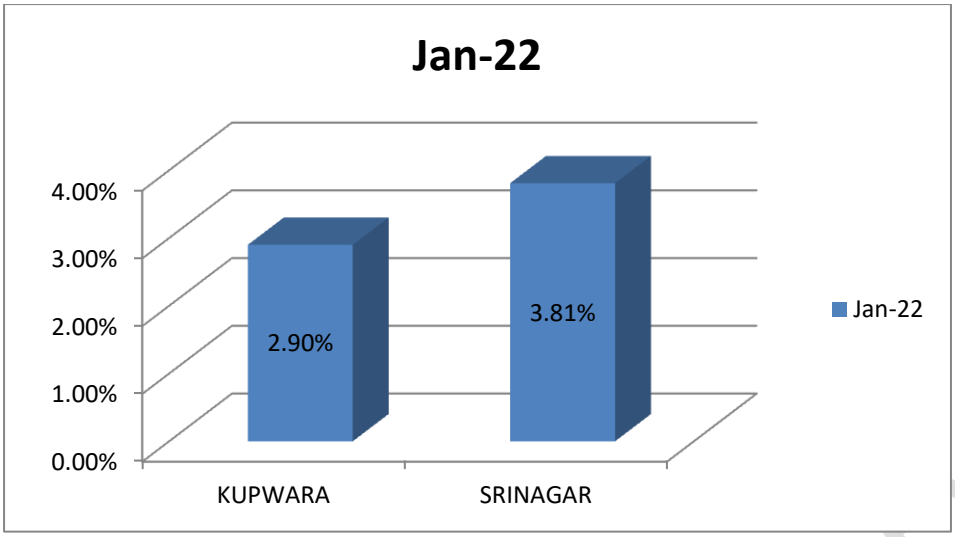
1)Batmaloo	5705	234 (4.1%)	5471 (95.8%)
2)TRC	1321	69 (5.2%)	1252 (94.7%)
3)SR Gunj	2499	74 (2.9%)	2425 (97%)
4)Khanyar	1389	39 (2.8%)	1350 (97.1%)
Total	10914	416 (3.81%)	10498 (96.1%)

Table 4: The percent positivity of four different regions from district srinagar in the month of jan 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%)

Chart 1 : COMPARISON OF POSITIVITY RATES IN DEC21 AND JAN22 OF KUPWARA AND SRINAGAR DISTRICS





Summary and discussion: In terms of the total number of confirmed cases, India ranked second after the US, reporting more than eight million COVID-19 cases as of October 31, 2020. The present study examined the district-level variation in COVID-19 cases from ist dec 2021 to jan 31, 2022. Our result illustrated the differences in COVID-19 cases at the district levels with few critical findings. First, the spread of COVID-19 has been increasing over time during the study period. At the onset of the COVID-19 pandemic, India imposed world's strictest nationwide lockdown beginning from March 25, 2020 [21], But, as of April 10, 2021, India was the third leading country after USA and Brazil's identified cases [22]. Like several other parts of the world, India has been experiencing a massive surge of COVID-19 cases and deaths [23-25]. The second wave has started in the middle of March, 2021 and recorded highest number (144,829) on April 09, 2021 [24,25]. The major affected states were Maharashtra, Kerala, Karnataka, Andhra Pradesh, Tamil Nadu, Delhi, Uttar Pradesh, West Bengal and jammu and kashmir [21,23,24]. Moreover, several megacities with high concentration of population and overcrowded with migrants registered high transmission rate of the disease. Mumbai and Delhi were the example of two such cities.

Conclusion: In this study, we trace the COVID-19 pandemic's footprint across kupwara and srinagar districts. Districts with a high share of urban population and high population density face elevated COVID-19 risks. Aspirational districts have a higher magnitude of transmission and fatality. The COVID-19 pandemic is expected to have a long-term impact on health, economy, and social processes globally, including India. Only a clear understanding of the disease's spatial distribution and its correlates will help to formulate policies and interventions. Therefore, the possible risk factors should be included in policy preparedness and implementation during the COVID-19 pandemic. Understanding risk factors of COVID-19 may also help to understand the future dynamics of COVID-19 or other such infectious diseases. We found that the population density and urban residence are significantly correlated with the COVID-19 infection ratio (IR). As in urban areas, the population density is very high, and social distancing is challenging to maintain; the role of government is crucial in combating the pandemic. By ensuring the health and hygiene-related facilities, (providing adequate clean water, adequate sanitation, and sewerage facilities, cleaning the city, maintaining quarantine centres and public health care institutions, etc.), and improving public distribution system to ensure minimum food supply, especially among the urban poor and other deprived sub-groups, can help to control the spread of COVID-19 infection. More tests are required to classify patients with asymptomatic conditions. Simultaneously, people's negligent behavior towards COVID-19 protocols (like, not following the social distancing norms, not wearing the mask in public places, and coughing without covering mouth) put

them at a higher risk. Finally, there is a need to improve infrastructure (hospitals, ventilators, PPE kits) and human resources (doctors, nurses, and frontline workers) in healthcare facilities. Our study does have a few limitations. For most cases, the patients' level of information (such as age, sex, and co morbidity) is unavailable. Therefore, we analyzed the district level determinants instead of individual-level determinants. Thus, our results identified the major correlates only at the district level. Finally, we analyzed the number of confirmed cases for infection ratio rather than the number of active cases. We used the number of confirmed cases as the primary indicator of the spread of the infection. Despite these limitations, the study's merit lies in bringing together spatial-demographic vulnerabilities prevalent across the nation during the pandemic period.

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