# Epidemiological Profile of Initial COVID-19 Positive Cases in a District of Trans-Himalayan Belt of Northern India

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**ABSTRACT**

**Introduction:** Total number of confirmed cases of COVID-19 in India is 3,55,060 as on 17th June 2020. COVID-19 has been declared pandemic by WHO. The most common symptoms reported are fever and cough. The objective of the study was to describe the demographic profile and clinical course and outcome of first 100 Covid-19 positive laboratory confirmed cases in District Kangra of Himachal Pradesh.

**Material and Methods:** We conducted an observational descriptive study among first 100 confirmed Covid-19 positive cases over a period of three months in district Kangra. All those who had been diagnosed as a confirmed case of Covid-19 on RT-PCR were included in the study.

**Results:** The mean age group of the study participants was 36.83 years (SD= 16.25 years). The most common clinical presentation of confirmed cases was cough (54%) and cold (54%) followed by fever (43%) and shortness of breath (5%). Out of 100 cases, while 59 have recovered and have been discharged back to home, 40 cases are still active where as only 1 death has been reported in the district so far. Community spread has not yet been documented in our district.

**Conclusion:** The testing policy may be strengthened and robust contact tracing may be taken up by the public health experts and the epidemiologists to prevent community spread as much as possible. Social distancing and personal hygiene are the only recommended measures that can help us stay protected from corona virus.

*Key Words:* COVID-19, Himachal, Kangra, Epidemiology.

## INTRODUCTION

World is reeling under an infection from Corona Virus having high infectivity mainly affecting respiratory system. It's been named as COVID-19 by World health organization (WHO). The first case of COVID-19 was reported in China in the month of December 2019, whereas outside china first case was reported around mid January, 2020 in Thailand. Its rapid spread was worldwide soon. India reported its first case January 30, 2020. There have been more than 7.6 million cases worldwide till now. Total number of confirmed cases in India so far is 2,76,582. [1] COVID 19 has been declared pandemic by WHO. [2] The most common symptoms reported are fever and cough. Symptoms like diarrhoea and jaundice are uncommon. [3]

Himachal Pradesh is a state in trans Himalayan region of India. Total numbers of cases in our state so far are 437. [4] Kangra is one of the 12 districts of Himachal Pradesh that is spread over an area of 5739 Sq KM and has a population of 1,510,075 which is nearly 25 % of that of the state. Such pandemics are rapid spreading and involve a large number of cases. Rapid actions are required to mitigate the spread of such disease and minimise

their spread into community. The objective of the study was to describe the demographic profile and clinics course and outcome of first 100 COVID positive laboratory confirmed cases in District Kangra of Himachal Pradesh.

## MATERIAL AND METHODS

The study was conducted in District Kangra, of Himachal Pradesh. District Kangra is one of the 12 districts that caters to One-Fourth of the population of the state. Most of the people from this district are under service sector countrywide but the majority of them are working in other states of India. We conducted an observational descriptive study among first 100 confirmed Covid-19 positive cases over a period of three months in district Kangra. All those who had been diagnosed as a confirmed case of Covid-19 on RT-PCR were included in the study.

**Statistical analysis:** Data was collected, cleaned and entered into Microsoft excel spreadsheet, and transferred to Epi Info v 7.2.1.0. The categorical variables were expressed in terms of frequencies, and proportions, whereas continuous variables were expressed as mean and standard deviation.

## RESULTS

There were 100 cases that were Covid positive in a time period of 3 months. These cases were diagnosed by Real Time-Polymerase Chain Reaction (RT-PCR) technique. The mean age group of the study participants was 36.83 years (SD= 16.25 years) with a range of 7 months to 74 years. The age group of 21-40 years was the most affected group (48%). Majority of the participants were males (78%) compared to females. While majority of the participants belonged to the service sector (31%) among those who were employed (66%), the rest were either house wives, retired personnel and students (34%). During the time when the international flights were still operational, the first three Covid-19 cases had a history of international travel, whereas only 1 study participant was a primary contact of Covid positive case who had no travel history without any symptoms. There were 2 contacts of the confirmed cases that were asymptomatic at the time of testing. After the lock down was implemented countrywide, the majority of the study participants (87%) who had tested positive had a travel history from states where a high incidence of [1] the cases were already being reported, such as Maharashtra (38%), Delhi (38%), Gujarat (5%) and Punjab (3%). Only 1% of the cases each were reported who had come from Tamil Nadu, Madhya Pradesh and Religious gatherings.(Figure 1) No cases were reported by the health teams in the field during active case finding, while 2% cases reported themselves at the flu clinics established in various health institutions at different Community Health Centers (CHC), Civil Hospitals(CH) and Zonal Hospital (ZH). A majority (87%) of the lot that was diagnosed positive were quarantined in various institutions across the district who were either symptomatic (37%) and were tested immediately, or were tested on day 7 of the quarantine period mandatorily and were asymptomatic (63%). (Table 1)

The most common clinical presentation of confirmed cases was cough (54%) and cold (54%) followed by fever (43%) and shortness of breath (5%). These confirmed cases were shifted to Covid Care Centres (CCC, 86%), Dedicated Covid Health Centres (DCHC, 10%) or Dedicated Covid Hospital (DCH, 4%) depending upon their health status. Those confirmed cases that were completely asymptomatic were shifted to CCC. Those who febrile, and/or were able to maintain saturation more than 90% but less than 94% were admitted in DCHC while those who were unable to maintain saturation of even 90% at room air and required oxygen support were shifted to DCH, which was a tertiary care level hospital. There were 13% of the cases that had co-morbidities such as hypertension (6), diabetes mellitus (4), chronic kidney disease (1), chronic pulmonary disease (1) and HIV(1). Out of 100 cases, while 59 have

recovered and have been discharged back to home, 40 cases are still active where as only 1 death has been reported in the district so far.(Table2)

| Table 1: Demographic Profile Of Covid Positive Cases (N=100) | | |
|---|---|---|
| | N | PROPORTION (%) |
| MEAN/ MEDIAN AGE | 36.83 ±(16.25) | |
| RANGE OF AGE | 7 MONTHS-74 YEARS | |
| AGE GROUP | | |
| 0-20 years | 9 | 9.0 |
| 21-40 | 48 | 48.0 |
| 41-60 | 28 | 28.0 |
| >60 | 6 | 6.0 |
| GENDER | | |
| Male | 78 | 78.0 |
| Female | 22 | 22.0 |
| NATIONALITY | | |
| Indian Nationals | 100 | 100.0 |
| Foreign Nationals | 0 | 0 |
| OCCUPATION | | |
| Hospitality | 10 | 10.0 |
| Service sector | 31 | 31.0 |
| Self employed | 25 | 25.0 |
| Unemployed | 34 | 34.0 |
| TESTING CATEGORY | | |
| International travel (CAT 1) | 5 | 5.0 |
| Primary contacts of Covid positive and symptomatic (CAT 2) | 1 | 1.0 |
| Health workers in contact with Covid positive and Symptomatic (CAT 3) | 3 | 3.0 |
| Severe acute respiratory illness (SARI) CAT 4 | 0 | 0 |
| Asymptomatic contacts of covid positive (CAT 5) | 2 | 2.0 |
| Flu clinics (CAT 6) | 2 | 2.0 |
| Active case finding in hotspots (CAT 7) | 0 | 0 |
| Interstate travel/ detention center/ quarantine institution (CAT 8) | 87 | 87.0 |
| TRAVEL HISTORY | | |
| Delhi | 38 | 38.0 |
| Maharashtra | 38 | 38.0 |
| Tamil nadu | 1 | 1.0 |
| Chandigarh | 2 | 2.0 |
| Gujarat | 5 | 5.0 |
| Madhya Pradesh | 1 | 1.0 |
| Punjab | 3 | 3.0 |
| International travel | 5 | 5.0 |
| Religious gathering | 1 | 1.0 |
| TRACEABLE SOURCES | 97 | 97.0 |
| UNTRACEABLE SOURCES | 3 | 3.0 |

| Table 2: Clinical Profile Of Covid Positive Cases (N=100) | | |
|---|---|---|
| ISOLATION CENTRES (EVER ADMITTED) | | |
| DCCC | 86 | 86.0 |
| DCHC | 10 | 10.0 |
| DCH | 4 | 4.0 |
| ASYMPTOMATIC | 63 | 63.0 |
| SYMPTOMATIC | 37 | 37.0 |
| CLINICAL PRESENTATION | | |
| Fever | 16 | 43.2 |
| Cough | 20 | 54.0 |
| Cold | 20 | 54.0 |
| Shortness of breath | 5 | 13.5 |
| COMORBIDITY | | |
| Yes | 13 | 13.0 |
| No | 87 | 87.0 |
| TYPES OF CO-MORBIDITY | | |
| Hypertension | 6 | 46.1 |
| Diabetes mellitus | 4 | 30.8 |
| Chronic kidney disease | 1 | 7.7 |
| Chronic Pulmonary Disease | 1 | 7.7 |
| HIV/AIDS | 1 | 7.7 |
| CLINICAL OUTCOME | | |
| Recovered | 59 | 59.0 |
| Resurgence | 0 | 0 |
| Died | 1 | 1.0 |
| Active cases | 40 | 40.0 |
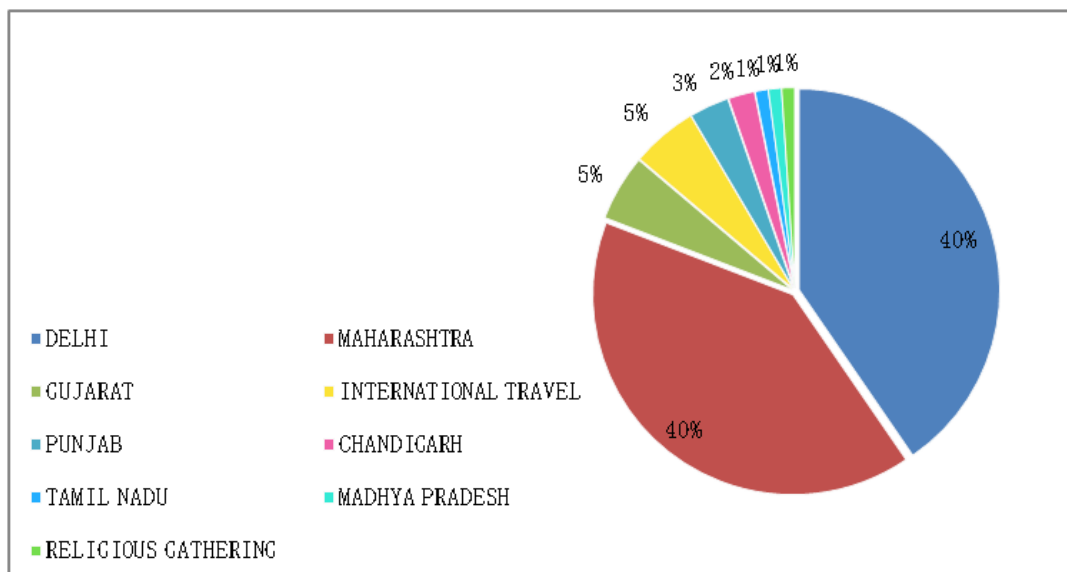
**Fig 1: Description of travel history of COVID confirmed cases**

## DISCUSSION

Majority of them are in service sector while others migrated outside the state in order to pursue their careers as students or job employment in various fields. This is evident from the age group that was most affected. All of the cases in our study were Indian Nationals of which only a few of them had visited outside India, none of whom had a travel history to Wuhan Province of China where the pandemic was first documented. Rest of the cases worked in different sectors in other states (Delhi and Maharashtra) and had not visited outside India in last 28 days which suggests that these states have already entered the Stage 3 of pandemic and the possibility of community spread cannot be overlooked. In district Kangra, the persons were considered as suspects who had visited outside India in the last 28 days were first institutionally quarantined for the first 14 days from the day of arrival in India and home quarantined later on for the next 14 days but as the guidelines evolved with time all those who had an interstate travel history were also institutionally quarantined for 14 days. This has so far proven to be beneficial to avoid community spread in our district.

More than half of the suspects who were later confirmed as Covid positive were asymptomatic. A study conducted by Nitesh Gupta et al [5] is also in similar lines with our study. [5] Possible reason could be the role of immunity. This is supported by the fact that in our study, only one death was reported who was an elderly, a known case of chronic pulmonary disease, Diabetes Mellitus and Hypothyroidism, and had recently returned from outside of India. The patients who were admitted to Covid Care Centres were asymptomatic. Rest of the patients who were admitted in Dedicated Covid Health Centres and Dedicated Covid Hospital who presented with breathlessness were managed conservatively with oxygen and supportive therapy and none of them required ventilatory support.

## CONCLUSION

Our study shows that males were affected more than the females which does not mean that this virus has any predisposition towards the males. The response against the COVID-19 pandemic has been rapid by the administration and the health in lieu of establishment of quarantine and isolation centres as well as the testing policy of all the international as well as interstate travellers. Community spread has not yet been documented in our district. Further analytical studies are warranted to study the role of herd immunity for prevention against the disease. The nationwide lock down has given us enough time to prepare against this international

disaster. Now that the lock down is gradually being uplifted, it is finally suggested that the testing policy may be strengthened and robust contact tracing may be taken up by the public health experts and the epidemiologists to prevent community spread as much as possible. Social distancing and personal hygiene are the only recommended measures that can help us stay protected from corona virus.

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