Journal Of Medical Science And Clinical Research
IGM Publication
An Official Publication Of IGM Publication

Prevalence of Symptomatic Positive Cases of COVID-19 among different aged group from different locations of Indore: Hospital Based Study

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Abstract
Introduction: *Coronavirus affected all aged grouped patients. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2) is the main pathogen which caused Coronovirus Disease 19 (COVID-19), initially detected in Wuhan City, China in Late 2019.Both young aged as well as elder aged persons were affected from Coronavirus. So, in our present study, we study about the prevalence of COVID-19 among different aged group of different location of Indore state.*
Aims & Objectives
- *To study the prevalence of positive COVID-19 cases (symptomatic) in different aged group patients.*
- *To study the prevalence of various variants of positive COVID-19 cases (symptomatic) among Rural and Urban area.*
Materials and Methods: *A total of 488 positive cases (Symptomatic) were included in our study aged between 0 to 90 years. Study was conducted in Department of Microbiology, Index Medical College and Research Center, Indore (M.P.) between 2020 to 2022.The Genome sequence of all the positive samples were identified through RT-PCR Test to detect the variant of COVID-19 and also to detected the symptomatic positive cases.*
Results and Discussions: *The prevalence of positive sample according to different aged group was showed and it found that highest number of positive cases was found between 11 to 20 years followed by 21 to 30 year aged group patients and the number was 183 and 166 respectively. That the prevalence of positive cases both in urban and rural area and the percentage of positive cases in urban and rural is 52.46% and 47.54% respectively. Out of 488 positive cases, 256 cases from urban area and remaining 232 cases from rural area.*
Conclusion: *Prevalence of Corona virus was much higher in younger group than that of elder one. The prevalence for both urban and rural region was common for Alpha variant followed by Delta variant. The prevalence of Urban region was slightly high than that of rural region. Regular health check should be done by the government both in private and government sectors and proper treatment should be given to the patients who were infected.*
Keywords: *Age, Urban, Rural, COVID-19.*

Introduction

Coronavirus affected all aged grouped patients. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2) is the main pathogen which caused Coronovirus Disease 19 (COVID-19), initially detected in Wuhan City, China in Late 2019.[1] At the end of January 2020, World Health Organisation (WHO), declared a public health emergency of international concern as it spred over more than 190 countries which infected 64.1 millions peoples and also 1.45 millions death worldwide.[2] The outbreak was formally declared Pandemic by WHO on March 11, 2020. After declaring COVID-19 as pandemic, Governments worldwide began adopting appropriate steps to slow down the spread of infection which include social distancing, shutting down public life and locking down individual.[3] According to an overview study carried out at the end of September, the (Infection Fatility Rate) IFR of SARS-CoV-2 is 0.68 (between 0.53 and 0.82). The rate is just above zero (0,04%) for children and young adults, reaching around 0.4% for the 55-year-olds and 1.3% for the 65-year-olds. 75-year-olds who fall ill with COVID-19, on the other hand, are already at 4.2% likeliness to die and those being 85 years old at 14 percent, respectively.[4-7] The European Centre estimates the case fatality rate (CFR, of confirmed cases) in Europe for Disease Prevention and Control (ECDC) to be 3.5% in the median, with a range from 0.6– 17.7% owing to the different European countries and is based on the number of deaths per confirmed case. Increasing age was shown to be strongly linked to increased risk of fatality, with 0% risk regarding children below ten years, about 1% over 60 years, and over 20% in the ninth decade of life.[8] As of December 01, 2020, in Austria, the current case-fatality rate is 1,1%. There have been registered 282.456 cases of COVID-19 and 3.184 related deaths.[9] In our present study, we study about the prevalence of COVID-19 among different aged group of different location of Indore state.

Aims & Objectives:

- To study the prevalence of positive COVID-19 cases (symptomatic) in different aged group patients.
- To study the prevalence of various variants of positive COVID-19 cases (symptomatic) among Rural and Urban area.

Materials and Methods

A total of 488 positive cases (Symptomatic) were included in our study aged between 0 to 90 years. Study was conducted in Department of Microbiology, Index Medical College and Research Center, Indore (M.P.) between 2020 to 2022. The Genome sequence of all the positive samples were identified through RT-PCR Test to detect the variant of COVID-19 and also to detected the symptomatic positive cases.

Observations and Results

Table 1: Prevalence of Symptomatic Positive case among different aged group patients

Aged Group (in yr.)	Number of Positive Sample
0-10	3
11-20	183
21-30	166
31-40	66
41-50	32
51-60	24
61-70	13
71-80	3
81-90	3

**Figure 1:** Prevalence of Symptomatic Positive case among different aged group patients
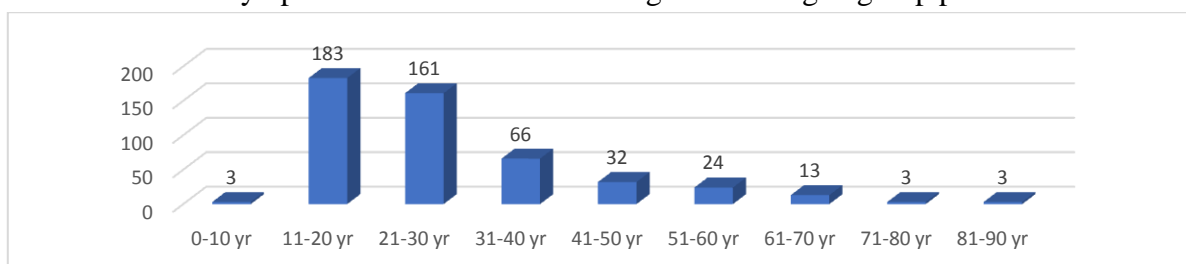
In table no.1 and Figure no.1, the prevalence of positive sample according to different aged group are shown, out of total 488 positive samples, 3 positive samples belongs between 0 to 10 years patients,183 positive samples are between 11 to 20 years patient group, between 21 to 30 years, a total of 161 positive samples are identified.

Between 31 to 40 year aged group, 66 positive samples are detected.32 positive samples belong between 41 to 50 year aged group. Between 51 to 60 years, a total of 24 positive samples are found and 3 each positive samples belong between 71 to 80 years and 81 to 90 years old patients.
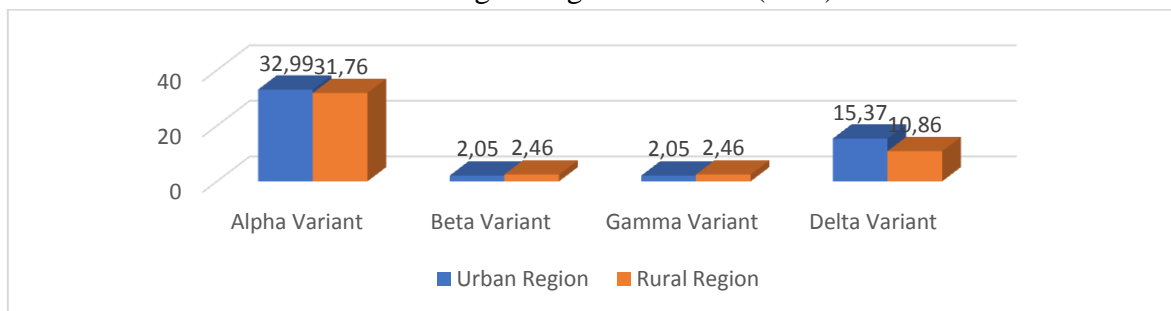
Table: 2 Prevalence of COVID-19 according to Region/Location

Types of Variant	Urban Area	Percentage	Rural Area	Percentage
Alpha	161	32.99	155	31.76
Beta	10	2.05	12	2.46
Gamma	10	2.05	12	2.46
Delta	75	15.37	53	10.86
Total	256	52.46	232	47.54

Figure 2: Prevalence of COVID-19 according to Region/Location
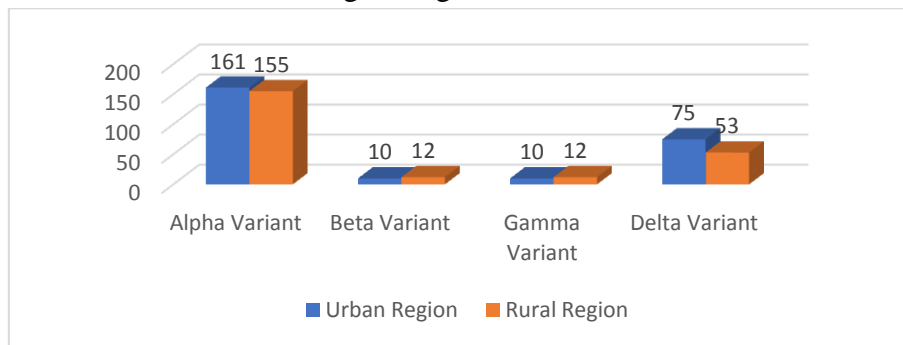
Figure 3: Prevalence of COVID-19 according to Region/Location (in %)

In table no.2 and figure no.2 & 3, Prevalence of Urban and Rural region shown according to different type of Variants. So, Alpha variant are more common in Urban region than Rural area. And the number is 161 and 155 positive samples in Uraban and Rural area respectively and the percentage is 32.99% and 31.76% respectively. Beta variant found more in rural area than urban region and the number and percentage is 12 (2.46%) and 10 (2.05%) respectively. The prevalence for Gamma variant in Urban and Rural area is 10 (2.05%) and 12 (2.05%) respectively. Delta variant found more in Urban area and the number is 75 and that of Rural area, the number is 53. Also, the percentage is 15.37% and 10.86% respectively for urban and rural area.

Discussion

In Table no.1 and Figure no.1, the prevalence of positive sample according to different aged group was showed and it found that highest number of positive cases was found between 11 to 20 years

followed by 21 to 30 year aged group patients and the number was 183 and 166 respectively. Least number of positive samples were detected in aged group between 0 to 10 year, 71 to 80 year and 81 to 90 year and the value was 3 each. So, prevalence of Corona virus was much higher in younger group than that of elder one. Our study strongly opposed with the study conducted by **Hamidreza Kalantari et al. in September 2020**[10] and they found that Among 161 suspected cases within the age range of 50–59 years, 102 cases were confirmed positive using RT-PCR, among which 16 (15.6%) died. Also, among 13 suspected cases within the range of 0–9 years, two cases were positive using RT-PCR and no death was reported among them. The highest prevalence of positive COVID-19 cases were among suspected cases within the age range of > 80 years. Also, study conducted by **Hongdou Li et al. in April 2020**[11] suggested that low incidence risk for young people but a very high mortality risk for seniors. Notably, mortality risk could be as high as 0.48 for people older than 80 years which indicated that the study strongly opposed with our present study. Our study also strongly opposed by the study conducted by **Zunyou Wu and Jennifer M. McGoogan in February 2020**[12] and they found that most case patients were 30 to 79 years of age (87%), 1% were aged 9 years or younger, 1% were aged 10 to 19 years, and 3% were age 80 years or older.

Table no.2 and Figure no.2 and 3 , indicated that the prevalence of positive cases both in urban and rural area and the percentage of positive cases in urban and rural is 52.46% and 47.54% respectively. Out of 488 positive cases, 256 cases from urban area and remaining 232 cases from rural area. According to our present study, the prevalence of Corona virus is slightly higher in Urban as compared with that of Rural area but according to **Manoj V. Murhekar et al, in May 2021**[13], they conducted state-wide surveillance for COVID-19, in both rural and urban areas of Karnataka between June 15-August 29, 2020. We tested for both viral RNA and antibodies targeting the receptor binding domain (RBD). Adjusted seroprevalence across Karnataka was 46.7% (95% CI: 43.3-50.0), including 44.1% (95% CI: 40.0-48.2) in rural and 53.8% (95% CI: 48.4-59.2) in urban areas. The relatively high prevalence in rural areas is consistent with the higher level of mobility measured in rural areas, perhaps because of agricultural activity which opposed our current study. Also, according to **Malancha Chakravaty and Shoba Suri in June 2021**[14], showed that the prevalence of Coronovirus was higher in Rural than Urban part of India. The peak of the first wave around September 2020, rural areas accounted for one in every three (33 percent) of all new cases. It was about 65 percent in both rural and semi-rural districts, which is almost double the 34-percent share of urban and semi-urban. Maharastra, Uttar Pradesh, Rajasthan were the state in which the rural area were more infected than urban parts which opposed with our study.

Conclusion

In our present study which was conducted in Department of Microbiology, Index Medical College and Research Center, Indore (M.P.) 488 samples were positives which included the patients between 0 to 90 year old patients from different religion, region, caste and races. The time period between our study was conducted was between 2020 to 2022.

> ➤ Highest number of positive cases was found between 11 to 20 years followed by 21 to 30 year aged group patients and the number was 183 and 166 respectively. Least number of positive samples were detected in aged group between 0 to 10 year, 71 to 80 year and 81 to 90 year and the value was 3 each. So, prevalence of Corona virus was much higher in younger group than that of elder one.

> ➤ The prevalence for both urban and rural region was common for Alpha variant followed by Delta variant. The prevalence of Urban region was slightly high than that of rural region.

In our study, we found that young aged persons were more infected by Coronavirus than older aged but the prevalence of urban and rural area was slightly same. So, young aged persons were important pillar of our economy as well as family economy. As it infected them, economy of the their family also affected. Many children's left their study due to their patients either lose job or either of their patients or both were die due to corona. After COVID-19, malnutrition also detected in children's as well as in adult. Government of India and State government should take some steps for the young persons by giving them job according to their education and skill and government schools should be increased for the children's whose family were affected from COVID-19. Also, regular health check should be done by the government both in private and government sectors and proper treatment should be given to the patients who were infected.

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