# A STUDY ON DEMOGRAPHIC PROFILE OF 500 COVID-19 RT-PCR POSITIVE PATIENTS ADMITTED TO TERTIARY COVID CARE CENTRE, MADURAI

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## INTRODUCTION

Novel Coronavirus disease (COVID-19) is a newly discovered contagious disease caused by severe acute respiratory syndrome (SARS)–coronavirus (CoV)-2 virus, primarily manifesting as an acute respiratory illness with interstitial and alveolar pneumonia, but it can affect multiple organs.(1) This infection has the potency to spread rapidly and cause pandemic. The human corona virus was first invented by Tyrrell and Bynoe in 1965 from human tracheal samples. The virus was named as B814, 229E, hamre's virus and oc by its inventor at different places at same time. It is a large RNA virus, made up several proteins like S proteins, E proteins, M proteins and N proteins. Corona virus develops inside the cytoplasm. The SARS CoV – 2 shows periodicity and can cause large epidemics. SARS CoV 2 has been identified as a bat origin CoV. The corona virus is responsible for 15% of adult common cold. The first covid -19 case was reported in 30th December 2019. The WHO declared this condition as Global health emergency on 30th January 2020.

The mean incubation period for COVID 19 is 5.2 days. The disease is highly contagious. The case fatality rate is 2.2%. It is transmitted commonly through air borne droplets during sneezing, coughing.

The corona virus enters into the cell by binding to the cellular proteins like ACE 2 receptor with the help of host serine protease TMPRSS2. The development of the immunity against the pathogen takes over 1 to 2 weeks. The common pathology is cytokine storm that results in ARDS and MODS. COVID 19 infection can be asymptomatic, mild, moderate and severe. Blood investigation shows lymphopenia, increased level of inflammatory markers. CT Chest and KUB shows characteristic changes. The recovery rate is 97 to 99.5%. Following social distancing, personal hygiene is must to control the pandemic. Restrictions for performing elective procedures, in order to divert the resources available to tackle the pandemic situation have major impact over the surgical diseases. COVID 19 pandemic has resulted in Global recession. COVID 19 pandemic made us to think innovatively like contactless interfaces, telemedicine and organizing digital events.

## METHODS

This is an observational study carried out over 5 months conducted in Government Rajaji Hospital, Madurai. After getting the Ethical Committee approval, the study was started. All patients admitted in Covid treatment centre, Government Rajaji Hospital, Madurai are included; patients who are not willing to participate in the study are excluded. After explaining the nature of the study to the patient, informed consent is obtained. Then patients are enrolled in the study. The required information is collected and the data is analyzed and inference is interpreted.

## OBSERVATION AND RESULTS

This study involves 500 covid positive patients who were admitted in covid treatment centre, Government Rajaji Hospital, Madurai, after getting informed consent.

## AGE DISTRIBUTION IN THE STUDY
Among the 500 study population, 45% of patients belong to 30 years – 50 years of age, 30% of patients belong to the age group of more than 50 years of age, 25% of patients belong to the age group of less than 30 years.
FIG : 1

## SEX DISTRIBUTION IN THE STUDY
Among the study population 65% of patients are male, 35% is female. Increased fatalities are seen in the age group of more than 50 years.

There is evidence of significantly lower infection among the women of age group between 20 years to 50 years than men. This may be due to several social factors.
FIG : 2

**BLOOD GROUPING AND COVID INFECTION**
Among the 500 patients included in the study; 223 patients had tested to have A positive blood group, 98 patients belong to blood group B positive, 174 patients belong to blood group O positive and 5 patients belong to the blood groups with Rh negative.

Hence, most of the patients who are infected are A positive blood group, but there is no proven reason for this blood group predisposition.
FIG : 3

**SOCIOECONOMIC STATUS AND COVID INFECTION:**
Among the 500 patients included in the study, 55% of people belong to lower socioeconomic group, 30 % of patients belong to lower middle socioeconomic status, 10 % of patients belong to middle socioeconomic class and 5% of patients belong to high socioeconomic group.
FIG : 4

**DISCUSSION**

In our studies, about 65% of people included in the study are males. This is similar to the study conducted by Sourendu gupta in the name of THE AGE AND SEX DISTRIBUTION OF COVID 19 CASES AND FATALITIES IN INDIA. [2] Males are commonly affected, this may be because of increased risk of exposure to the males who are the working population in the middle socioeconomic class than females also there few biochemical theories that proves increased risk for males.

This result is similar to the study conducted in the Italy by Ivan Arisi.[6] which states that males are increasingly affected than females. This may be due to effect of sex hormone like estrogen that promotes the innate and adaptive immunity.[7] Whereas the androgens have immune-suppressive effect, hence, males are more prone to infectious disease, this also explains the reason of decreased incidence of asthma in boys compared to girls.[8]

Among the 500 patients included in the study, more number of patients belong to the age group of 30 years to 50 years but increased fatalities is seen in the age group of more than 50 years. This is similar to results obtained in the study done by Sourendu gupta in the name of THE AGE AND SEX DISTRIBUTION OF COVID 19 CASES AND FATALITIES IN INDIA.[2] Among the females, the trend is different; the incidence of infection is more after 50 years and before 20 years, whereas the overall increased incidence is more between the age group of 30 to 50 years.

This is similar to the WHO SITUATION REPORT – 89,[5] where the highest infected and hospitalized population is between 40 to 59 years of age among both men and women.

Among the 500 patients included in the study about 223 patients had tested to have A positive blood group. Hence, most of the patients who are infected are A positive blood group, but there is no proven reason for this blood group predisposition. This is similar to the results obtained in the study by Joel G Ray et al titled as Association Between ABO and Rh Blood Groups and SARS – CoV – 2 infection or Severe COVID – 19 illness : a population –Based Cohert study. Published in National Library of Medicine.[3]

Among the 500 patients included in the study, more than 55% of people belong to lower socioeconomic group and 30 % of patients belong to lower and lower middle socioeconomic status. This result is similar to the study done in The United States where the highest number of coronavirus disease is recorded in 2019 done by R B Hawkins et al, titled as Socio-economic status and Covid 19 related cases and fatalites in Dec 2020.[4] This may be due to the economic needs that pulls them to work and socialize that can lead to transmission of infection and also the inadequate nutrition of the patient can lead to increased risk of developing disease after exposure. The overcrowding in the house and poor ventilation in house are the risk factor easy communicability of the disease, reinfection and worsening of the disease condition.

**CONCLUSION**

From this observational study conducted in Madurai, it is inferred that males are more prone for covid 19 infections and the common age group of people involved is 30 to 50 years. There is an evidence of increased incidence of corona virus infection among the people with A positive blood group. The complications are seen more in the patients with age group of above 50 years of age. The socioeconomic status of the people also has an impact in the incidence of disease and its prognosis.

**REFERRENCE**

1. Wang D, Hu B, Hu C, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA. https://doi.org/10.1001/jama.2020.1585. Accessed, 2020.
2. Sourendu gupta in the name of THE AGE AND SEX DISTRIBUTION OF COVID 19 CASES AND FATALITIES IN INDIA. https://doi/10.1101/2020.07.14.20153957. Accessed, 2021.
3. Joel G Ray et al titled as Association Between ABO and Rh Blood Groups and SARS – CoV – 2 infection or Severe COVID – 19 illness : a population –Based Cohert study. Published in National Library of Medicine (https://pubmed.ncbi.nlm.nih.gov/33226859/ ). Accessed, 2021.
4. R B Hawkins et al, titled as Socio-economic status and Covid 19 related cases and fatalites in Dec 2020 (https://pubmed.ncbi.nlm.nih.gov/33227595/ ).

5. WHO SITUATION REPORT - 89 : WHO global case based surveillance for human infection with coronavirus disease (COVID 19) according to the data received by WHO from national authorities by 10.00 CEST, 2020.

6. AGE AND GENDER DISTRIBUTION OF COVID-19 INFECTED CASES IN ITALIAN POPULATION BY IVAN ARISI, bioinformatics faculty, European Brain Research Institute, Viale Regina Elena, Rome, Italy. https://doi.org/10.21203/rs.3.rs-72021/v1.

7. Bartz, D., et al. Clinical Advances in Sex and Gender – informed medicine to improve the Health of All. A review. JAMA intern med. 180,574-83; https://doi.org/10.1001/jamainternmed, 2019; 7194.

8. Saharifi, N. & Ryan, C. J. Androgen hazards with Covid-19. Endocrine Related Cancer. 27:E1-E3; https://doi.org/10.1530/ERC-20-0133 (2020)