

# Positive rate of COVID 19 in the setting of GGH Ghulam Muhammadabad

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## ABSTRACT

**Background:** The corona virus disease also known as COVID-19 has opened gates to a lot of research about detection, treatment and prevention in the last past year due to lack of information regarding the SARS-CoV-2 virus. PCR corona via nasopharyngeal swab is the standard method of detection in our set-up.

**Materials and methods:** Nasopharyngeal swabs were taken by ENT department using precautions and following proper SOPs. Swabs were sent for rRT-PCR tests. Data was collected and analyzed. All the subjects meeting the inclusion criteria were included in study. Data was analyzed using SPSS version 20. Frequency and percentage was calculated for gender. Positivity rate was calculated using CDC formula.

**Study design:** - Descriptive studies

**Place and Duration of Study:** - Government General Hospital, Ghulam Muhammadabad, Faisalabad. 889 samples were taken from 7.1.2020 to 6.12.2020.

**Results:** Standard PCR for corona test by nasopharyngeal route was taken of suspected corona patients and of patients with contact with corona positive patients. 894 samples were taken from 7.1.2020 to 6.12.2020. 263 were positive for corona. The calculated positive rate is 29.41%.

**Conclusions:** Calculation of positive rates is a very easy metric to give us a quick overview of the spread of the virus.

**Keywords:** COVID-19, Positive rates, PCR-Corona

## INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is running rampant across the globe with second and third waves further worsening the situation. It is a positive-sense single-stranded RNA  $\beta$  family coronavirus [1]. The average size of a virion is 50–200 nm in diameter. It consists of 04 structural proteins labeled as S (spike), E (envelope), M (membrane) and N (nucleocapsid). Nucleocapsid holds the genome of the virus and S, E, and M proteins construct the virus envelope [2].

SARS-CoV-2-infected patients are known to spread disease in symptomatic, pre-symptomatic, and asymptomatic phase [3]. In order to diagnose suspected cases a reliable, accessible, cost effective and non invasive diagnostic test should be used. The data collected can be used to determine positive rates among the tested population. According to public health experts to reduce the spread of the virus testing, tracking and tracing the contacts is an effective strategy. Governments throughout the World are exercising this practice to variable extent [2].

A lot of cases might have been missed due to limited testing. In countries with a high positive rate, the number of confirmed cases is likely to represent only a small fraction of the true number of infections. And where the positive rate is rising in a country, this can suggest the virus is actually spreading faster than the growth seen in confirmed cases.

In our set-up, testing was only done of suspected cases leading to high positive rates. High positive rates also indicate that under testing is being done and more

tests should be performed to get a clear view of the true positive rate and spread of disease [7].

## METHODOLOGY

This descriptive study was carried out in Government General Hospital, Ghulam Muhammadabad. 894 patients were enrolled in the study after meeting the inclusion criteria. Patients not fulfilling the criteria were excluded.

### Inclusion criteria:-

1. All suspected cases which either have symptoms or direct contact with proven positive patients.
2. All age groups
3. Both genders
4. Patient willing for testing

### Exclusion criteria:-

1. Patient no willing for test.
2. Patient with no symptoms of corona infection
3. Patients with no history of contact with Corona positive patients.

**Sampling technique:** Non probability selective sampling

**Sampling Method:** Nasopharyngeal swabs were taken by ENT department using precautions and following proper SOPs. Swabs were sent for rRT-PCR tests. Data was collected and analyzed.

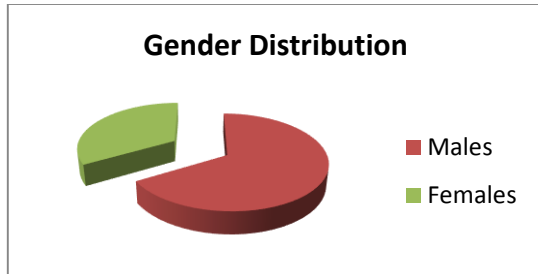
**Data Analysis:** All the subjects meeting the inclusion criteria were included in study. Data was analyzed using SPSS version 20. Frequency and percentage was calculated for gender. Positivity rate was calculated using CDC formula.

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**RESULTS**

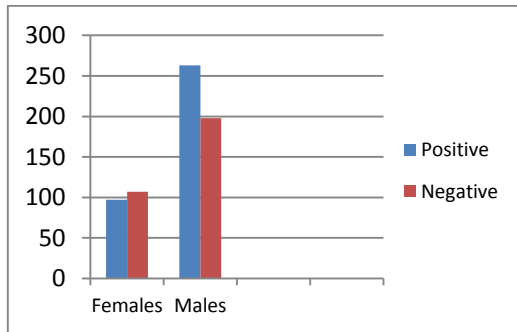
**Gender Distribution:** A total of 894 samples were taken from 7.1.2020 to 6.12.2020. Among these 595 were males and 299 were females.



Male to female ratio is 1.99: 1. It can be said for every 2 male patient infected with corona 1 female was infected.

**Positive and Negative cases:-**

	MALE	FEMALE	TOTAL
TOTAL	595	299	894
POSITIVE (discharged)	263	97	360
NEGATIVE (discharged)	198	107	305
AWAITED (lost on follow-up)	153	94	247
DEATHS	87	35	122



A total of 595 males were tested among which 263 were positive while 198 were negative. Similarly, among 299 patients 97 were positive and 107 were negative. A total of 360 patients were positive and 305 were negative. After treatment, these patients were discharged.

Rate of positivity was calculated by CDC formula used:

Positivity rate: - 
$$\frac{\text{Positive cases}(595)}{\text{Total cases}(894)} \times 100\%$$

Lab results of 247 patients were still awaited when they were lost on follow-up and actual results could not be recorded and added to the data. 122 patients expired during this period among which 87 were males and 35 females.

**DISCUSSION**

From above mentioned date it can be assessed that the positivity rates in Faisalabad were too high in the year 2020. Two factors determine the rate of positivity among population; the total number of tests and the total number of positive results. The percent positive will be high if the number of positive tests is too high, or if the number of total

tests is too low. In our case, both factors played an important part. Due to lack of awareness or other factors only few people came forward with corona symptoms and with history of corona testing. So the total number of tests was not large enough to accurately determine the true positive rate in Faisalabad. Lack of random testing also tipped the scales in favor of more positive as majority of the patient tested for COVID-19 already had corona symptoms and positive chest X-ray findings. Although the positivity rate is a very important indicator of spread of disease in a given population, the limited number of tests conducted has given rise to high positivity rates which may create panic among general population.

**CONCLUSIONS**

Due to limited number of tests conducted, high positivity rates were seen in our study. We suggest a conduction of appropriate sampling technique to have true positive cases, increase in number of tests and proper follow-up and data collection to calculate true positivity ratio in given time frame.

**REFERENCES**

1. World Health Organization Coronavirus disease (COVID-2019) situation reports. Geneva: WHO; 2020. [www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports](http://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports)
2. Wang D, Hu B, Hu C, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus–infected pneumonia in Wuhan, China. JAMA. Published online February 7, 2020. doi:10.1001/jama.2020.1585
3. Bi Q , Wu Y, Mei S, et al. Epidemiology and transmission of COVID-19 in Shenzhen China: analysis of 391 cases and 1286 of their close contacts. Lancet Infect Dis 2020. doi: 10.1016/S1473-3099(30)30287-5. Epub 27 April 2020
4. Holshue ML, DeBolt C, Lindquist S, et al; Washington State 2019-nCoV Case Investigation Team. First case of 2019 novel coronavirus in the United States. N Engl J Med. 2020;382(10):929-936. doi:10.1056/NEJMoa2001191
5. US Centers for Disease Control and Prevention. Coronavirus disease 2019 (COVID-19): information for laboratories. Accessed March 1, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/lab/index.html>
6. Bernard Stoecklin S, Rolland P, Silue Y et al. First cases of coronavirus disease 2019 (COVID-19) in France: surveillance, investigations and control measures, January 2020. Eurosurveillance 2020; 25: 2000094.
7. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med 2020;382:1199–207. <https://doi.org/10.1056/NEJMoa2001316>.
8. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med 2020;382:1708–20. <https://doi.org/10.1056/NEJMoa2002032>.
9. World Health Organization. Coronavirus disease 2019 (COVID-19) situation report 104. [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200503-covid-19-sitrep-104.pdf?sfvrsn=53328f46\\_2](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200503-covid-19-sitrep-104.pdf?sfvrsn=53328f46_2), Accessed date: 3 May 2020.
10. World Health Organization. WHO Director-General's remarks at the media briefing on 2019-nCoV on 11 February 2020. <https://www.who.int/dg/speeches/detail/who-director->

- general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-februarv-2020, Accessed date: 3 May 2020.
11. Mao L, Jin H, Wang M, Hu Y, Chen S, He Q, et al. Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. *JAMA Neurol* 2020. <https://doi.org/10.1001/jamaneurol.2020.1127>. [Apr 10. [Epub ahead of print]].
  12. Lovato A, de Filippis C, Marioni G. Upper airway symptoms in coronavirus disease 2019 (COVID-19). *Am J Otolaryngol* 2020:102474. <https://doi.org/10.1016/j.amjoto.2020.102474>.
  13. Lovato A, de Filippis C. Clinical presentation of COVID-19: a systematic review focusing on upper airway symptoms. *Ear Nose Throat J* 2020. <https://doi.org/10.1177/0145561320920762>. [145561320920762, Apr 13. [Epub ahead of print]].
  14. Marchese-Ragona R, Ottaviano G, Nicolai P, Vianello A, Carecchio M. Sudden hyposmia as a prevalent symptom of COVID-19 infection. *medRxiv* 2020. <https://doi.org/10.1101/2020.04.06.20045393>. [2004.2006.20045393, Apr 7. [Epub ahead of print]].
  15. Wu Y, Xu X, Chen Z, Duan J, Hashimoto K, Yang L, et al. Nervous system involvement after infection with COVID-19 and other coronaviruses. *Brain Behav Immun* Mar 30, 2020. <https://doi.org/10.1016/j.bbi.2020.03.031>. [pii: S0889-1591(20)30357-3, [Epub ahead of print]].