



Outcome of COVID-19 Positive Patients in a COVID-19 Dedicated Referral Hospital

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: The COVID-19 pandemic in Bangladesh is a manifestation of the global outbreak of the coronavirus illness 2019 (COVID-19), which is caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). Bangladesh is the second most affected country in South Asia, following India.

Objective: The aim of the study was to evaluate the outcome of COVID-19 Positive patients admitted in Central Police Hospital Dhaka, Bangladesh.

Methodology: This was an observational cross-sectional study conducted in Central Police Hospital, Rajarbag Dhaka, Bangladesh during April 2020 to October 2020 and a total of 200 confirmed COVID-19 positive admitted patients from Covid Ward were enrolled in this study. The

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formal permission was taken from the registrar and the director of the hospital and the data were collected from the hospital registered copy and preserved in Microsoft Excel Software. The collected data were analyzed by Statistical Package for Social Sciences (SPSS) software, version-23.0.

Results: In this study a total of 200 study subjects were enrolled. All the study subjects 100% were police personnel and their family members. Among the study subjects, 90(45%) were constable to sub-inspector and followed by 50(25%) inspector to upwards, 20(10%) retired police personnel and 40(20%) of their family members. The majority 60(30%) belonged to the age group (40-49) years. According to gender distribution, 89% patients were male and only 11% patients were female. Among the females (n=22), 7(31.81%) were observed pregnant and 15(68.19%) were observed non pregnant. Distribution by severity, 85% cases were mild to moderate and 15% cases were severe (critical) and received treatment in the ICU. According to the distribution of critical patients by age, 5%, 10%, 40% and 45% of the patients belonged to age group (0-39) years, (40-49) years, (50-59) years and above 60 years respectively. Only 12.3% patients received plasma therapy. Among the study subjects, the survival rate was 99% and the death rate was only 1%. According to the age distribution of the death cases, 0% death case belonged to age group (0-49) years and followed by 0.5% death case (50-60) years and 0.5% death case above 60 years.

Conclusion: Among the front line fighters against Ccovid 19 Pandemic, police forces were the most vulnerable to be affected by the infection due to their close association with the population. Survival rate was high (99%) in contrast to the world perspective.

Keywords: COVID 19; pandemic; positive; patients; outcome.

1. INTRODUCTION

The COVID-19 pandemic in Bangladesh is a manifestation of the global outbreak of coronavirus disease COVID-19, which is caused by the severe acute respiratory syndrome (SARS-CoV-2). In March 2020, it was confirmed that the virus had spread to Bangladesh. The initial three documented instances were officially reported on March 8th, 2020 by the Institute of Epidemiology, Disease Control and Research (IEDCR). Since then, the pandemic has progressively spread throughout the entire nation, resulting in a continuous rise in the number of affected individuals. Bangladesh is the second most affected country in South Asia, following India [1-2]. On December 31, 2019, China officially notified the World Health Organization (WHO) about many cases of pneumonia with unidentified origins. On January 12, 2020, the World Health Organization (WHO) verified that a new strain of coronavirus was responsible for a respiratory ailment affecting a group of individuals in Wuhan and Hubei Province, China. The mortality rate of COVID-19 has been considerably lower compared to the SARS outbreak in 2003. However, the rate of transmission has been significantly higher, resulting in a substantial number of deaths. Due to its high population density and the presence of a large number of stateless Rohingya refugees in overcrowded refugee camps, Bangladesh faces significant challenges in combating the

development of COVID-19, as these conditions are favorable for the rapid transmission of epidemics. Italy is also home to substantial migrant populations, residing in a country that has been heavily impacted by the COVID-19 pandemic. Globally, the urban underprivileged have been among the most adversely impacted by the COVID-19 pandemic and the corresponding governmental measures. In lockdown most informal workers have lost all their income, having no formal employment [3-5]. Police force in Bangladesh remain vulnerable to contracting the COVID-19 while working in the field to ensure people's safety amid a lack of adequate safety equipment. In addition police are disinfection streets, assisting working people to ensure social distancing in lockdown. They are experiencing a higher rate of infection compared to others due to their involvement in gatherings. As of November 9, 2020, the World Health Organization (WHO) has reported a total of 50,26,6033 confirmed cases of COVID-19, with 12, 54,567 deaths, as provided by national authorities. The United States, the country most severely affected by the pandemic, has reported a total of 97, 63,730 cases, including 2, 35,562 deaths, according to the World Health Organization (WHO). In India with 85, 53,657 cases while 1, 26,611 deaths. In Bangladesh with 4, 21,921 cases while 6,092 deaths are reported. According to the data from police headquarters up to 16 November 2020 the total number of effected police force was 15,45. Total

number of laboratory test was 56,802. Total recovery was 15,364, affected rate 28%. In isolation 469, in quarantine 3,961. On treatment 393 and the total number of police members died 75 [6].

1.1 Objectives

1.1.1 General objective

To evaluate the outcome of COVID-19 positive patients admitted in Central Police Hospital Dhaka.

1.1.2 Specific objectives

- To assess the socio-demographic pattern of the study subjects.
- To evaluate outcome of admitted COVID-19-positive patients.
- To find out treatment pattern of the respondents
- To find out the death rate among the respondents.

2. METHODOLOGY

This was an observational cross-sectional study conducted in Central Police Hospital, Rajarbag Dhaka, Bangladesh during April 2020 to October 2020. Purposive sampling technique was used in this study and a total of 200 confirmed COVID-19 positive admitted patients (police personnel) from Covid Ward were enrolled in this study. The study subjects received treatment according to the 2020 National Guidelines for Clinical Management of COVID-19, provided by the Disease Control Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh. The requisite authorization was obtained from the registrar and the hospital director, and the data were acquired from the hospital's official records. Due to the primary transmission of COVID-19 infection through the respiratory and oropharyngeal route, conducting face-to-face interviews with the respondents was not feasible. The data collected were stored in Microsoft Excel software. Subsequently, the data underwent analysis using the Statistical Package for Social Sciences (SPSS-23). The data underwent inferential statistical analysis, and the findings were displayed in tables and charts, presenting the frequency and percentage distributions.

2.1 Inclusion Criteria

1. Confirmed Covid Positive Cases
2. Mild, moderate and severe cases
3. Admitted Police Personnel and their family members

2.2 Exclusion Criteria

1. Non-COVID Cases
2. Non-admitted COVID Cases
3. Non-Police Personnel and their family members

3. RESULTS AND DISCUSSION

Table 1 shows the distribution of the patients by age. According to the distribution of the respondents by age, (20%), (30%), (35%) and (15%) of the respondents belonged to age groups (0-39) years, (40-49) years, (50-59) years and above (60) years respectively.

Table 1. Distribution of the study patients by age (n=200)

Age	Frequency	Percent
30-39	40	20
40-49	60	30
50-59	70	35
Above 60	30	15
Total	200	100.0

Fig. 1 shows that most of the respondents 178(89%) were male and rest of them were female 22 (11%).

Table 2 shows the distribution of female patients according to pregnancy. Among the female study patients, 7 (31.81%) were pregnant and 17 (68.19%) were non-pregnant.

Table 2. Distribution of female study patients by pregnancy status (n=22)

Response	Frequency	Percent
Pregnant	7	31.81
Non pregnant	15	68.19
Total	22	100

Table 3 shows the distribution of the study patients by occupation. According to occupation distribution, (45%), (25%), (10%), and (20%) of the respondents belonged to police personnel from constable to sub-inspector, police from Inspector to upwards, retired police officers, and their family members respectively.

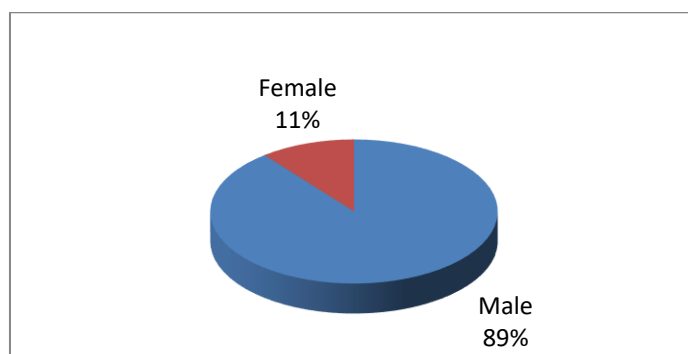


Fig. 1. Distribution of the study patients by sex (n=200)

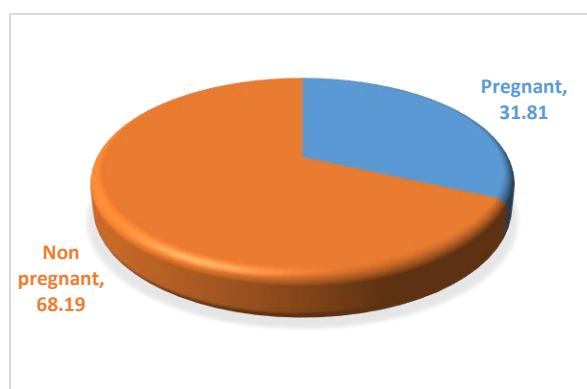


Fig. 2. The distribution of the female study patients by pregnancy status (n=22)

Table 3. Distribution of the study patients by designation and family members (n=200)

Occupation	Frequency	Percent
Police in service (from constable to sub inspector)	90	45
Police in service (from Inspector to upwards)	50	25
Retired police personnel	20	10
Family members of police personnel	40	20
Total	200	100.0

Table 4. Distribution of the patients who became critical based on age (n=30)

Age Group	Frequency	Percent
30-39	2	5
40-49	3	10
50-59	12	40
Above 60	13	45
Total	30	100.0

Fig. 3 shows that most of the patients (85%) were mild to moderate cases and (15%) were critical patients and treated in ICU.

Table 4 reveals that (5%), (10%), (40%), and (45%) of the respondents who became critical belonged to age group (0-39) years, (40-49) years, (50-59) years and above 60 years respectively.

Fig. 4 illustrates that only (12.3%) of patients received plasma therapy and (87.7%) did not receive it.

Fig. 5 shows that among the study patients 198(99%) survived and 2(1%) died.

Table 5 shows the age distribution of the death cases. According to the age distribution of the death cases, (0%) death case belonged to age group (0-49) years, and followed by (0.5%) death case (50-60) years, (0.5%) death case above 60 years.

Table 5. Age distribution of the death cases (n=4)

Age	Frequency	Percent
0-49	0	0
50-60	1	0.5
Above 60	1	0.5
Total	2	1

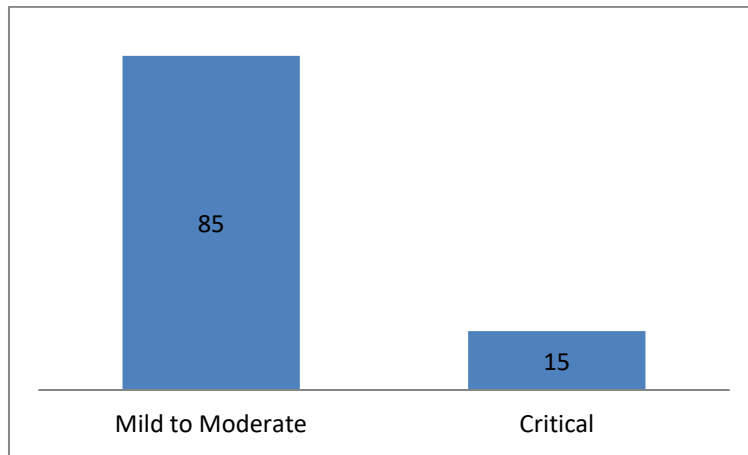


Fig. 3. Distribution of the study patients by the severity of disease (n=200)

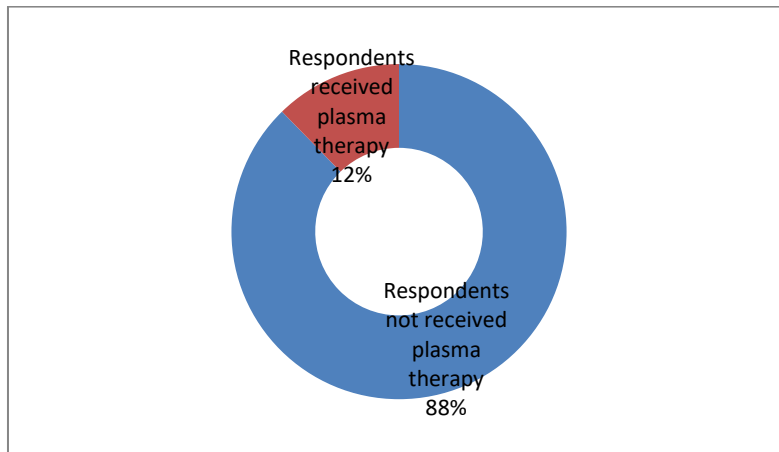


Fig. 4. Distribution of the patients by receiving plasma therapy (n=200)



Fig. 5. Distribution of the patients on the basis of death and survival rate (n=200)

This observational cross-sectional study was conducted to assess the outcome of COVID-19 positive police personnel admitted in Central Police Hospital, Rajarbagh, and Dhaka. A total of 200 COVID-19 positive police personnel and their family members were included in this study to evaluate the treatment outcome of COVID-19 positive cases. In this study it was observed that males were mostly affected 89% whereas females were less affected 11%. Males were also vulnerable and turn to critical phase 83%, whereas females turned to critical phase 17%, which was similar to the study of Original Research Article Front Public Health 29 April 2020 [7]. These findings of this current study were also similar to the study of the conversation.com, on Sep2020 [8]. The distribution of patients by sex at this hospital does not necessarily mirror the national or worldwide trends. Female patients were admitted first, while male patients were admitted starting from the last week of April. Amidst the COVID-19 outbreak, police personnel and their family members who displayed no symptoms or had mild illness were treated through telemedicine or isolated in different centers. Only those who were symptomatic or severely ill were admitted to hospitals. Consequently, a significant number of patients in critical condition were observed. Over 25,000 police personnel and their family members were impacted by the COVID-19 virus. The majority of them received treatment through telemedicine, while others sought treatment at various satellite centers. However, it is important to note that these individuals were not included in our study. Our study specifically focused on police personnel and their family members who were admitted to the Central Police Hospital in Dhaka, Bangladesh. This study showed that the patients who became critical and died belonged to age group 50 and above. It is similar to the national article published by the MOHFW.gov.bd. [9-10]. In Bangladesh Central Police Hospital started plasma therapy very early, 12% of our patients had received plasma therapy with a very positive success rate. This study illustrates that mostly working polices got affected by COVID-19, as they work in the fields every day. This is corroborated by another study titled "Occupation with the highest COVID-19 Risk," which was released in partnership with Visual Capitalist on April 20, 2020. By the term 'critical patients', in this current study indicates those patients who were treated in ICU. In our study, 15% patients were treated in ICU which is persistent to some other studies [11-14]. Our study prevailed 99%

survival rate and the death rate was only 1% which was more better ratio than that of other studies. This may be happened due to the strong immunity system of the police personnel than that of the general people as well as the effective treatment facilities of the Central Police Hospital of Bangladesh [15-17].

4. CONCLUSION

On the basis of the findings of the study it is obvious that as front line fighters police forces were more vulnerable to contract the novel corona virus. This study prevailed the survival rate of the police personnel was 99% and the death rate was only 1%. The death rate was high among male patients. As outcome is good and mortality and morbidity is less than global situation, this study concludes that the treatment protocol that Bangladesh followed was effective for the treatment of COVID-19 positive patients.

5. RECOMMENDATIONS

As Central Police Hospital is a departmental hospital, the patients that we got were usually member of police and their family members. So our study may not reflect the whole scenario of the Nation. So large scale survey should be carried out through the whole country to determine the actual scenario of the COVID-19 affected patients.

6. LIMITATIONS OF THE STUDY

The study was conducted in a single center with a small sample size over a short study period. So, the results may not represent the whole country.

CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standards written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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