

Demographic and Clinical profile of 190 COVID-19 Patients in a Tertiary Care Private Hospital of Dhaka, Bangladesh: An Observational Study

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Abstract:

From late December'19 till the end of August 2020, in this nine months period, world has lost more than eight hundred thousands people due to COVID-19 pandemic. Clinical data on COVID-19 in Bangladesh is less. The objective of our study was to evaluate demographic and clinical profile with in a defined period among COVID-19 Bangladeshi Patients in a Tertiary Care Private Medical College Hospital of Dhaka. We conducted a retrospective descriptive study on epidemiological & clinical profile along with short term treatment outcomes of 190 COVID-19 patients from COVID dedicated unit of Popular Medical College Hospital (PMCH) during the period of 18th June to 22nd August 2020 (2 months) with a pre-determined case record form (CRF). Among this 190 patients, mean age was found to be 53 years. Highest percentage of patients (44%) belonged to 41-60 years of age. Regarding gender distribution, two-third patients were male (65%) & one-third patients were female (35%). The predominant symptoms of our enrolled patients were fever (88%), cough (81%), dyspnoea (58%) & fatigue (50%). Around half of the patients had been suffering from Hypertension (54%) and Diabetes (47%). Almost half of our patients belonged to moderate severity (48%). The duration of Hospital stay was from 1-36 days, mean was 7 days. There was significant difference for severe and non-severe cases (p value 0.01).



DOI: <https://doi.org/10.3329/jom.v21i2.50210>

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Received: 10 August 2020;

Accepted: 25 August 2020

Introduction:

From late December'19 till the end of August 2020, in this nine months period, more than 23 million people are affected globally with more than eight hundred thousands death due to COVID-19 pandemic¹. The whole world is fighting against this invisible enemy. People are trying hard to adopt with this new normal life. Global economy is facing huge challenge. We still do not know when this devastating situation will come to an end; when we can breathe in fresh air, without wearing masks.

As this is a novel coronavirus, still evolving, we are learning new information every day. Scientific research is going on throughout the world to know more about this virus, so that we can combat against it. Though severe acute respiratory illness with fever and respiratory symptoms comprise the main clinical presentations², but we must keep in mind the atypical presentations, so that no case will remain undiagnosed. Understanding regional features are always important. There are few published studies on COVID-19 patients from Government Hospitals. So, we conducted this descriptive study on 190 COVID-19 cases from COVID dedicated unit of a tertiary care Private Medical College Hospital to give a highlight on the epidemiological & clinical profile in our private hospital setting.

Methodology:

a) Study Design:

We conducted a retrospective descriptive study on epidemiological & clinical profile along with short term treatment outcomes of COVID-19 patients from COVID dedicated unit of Popular Medical College Hospital (PMCH) during the period of 18th June to 22nd August 2020 (2 months).

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b) Study Population:

We selected consecutive 190 patients from COVID dedicated isolation wards/ cabins of Popular Medical College Hospital. Patients were diagnosed COVID-19 case either by real-time polymerase chain reaction (RT-PCR) positivity or by clinical features along with typical HRCT chest findings. The patients who were critically ill and admitted directly in ICU were not included in our study. The study was approved by Institutional Ethical Committee and written informed consent was obtained from patients involved before enrolment.

c) Data Collection:

A team of doctors who had been treating these patients extracted the medical records from direct interviewing the patients/ attendants after taking the written informed consent & also from the hospital records. All the data were included in a previously prepared Case Record Form, giving particular ID number to each patient.

d) Variables:

The data included contact history, demographic information and clinical presentation including symptoms on admission and co-morbidities, laboratory investigation reports including chest imaging, treatment programs, and clinical outcomes along with duration of hospital stay.

We clinically classified the patients' severity according to the clinical criteria of our national guideline (version 7.0)³

Grading of severity	Criteria
Mild	The clinical symptoms are mild, and there is no sign of pneumonia on imaging.
Moderate	Fever and respiratory symptoms with radiological findings of pneumonia. Respiratory distress with < 30 breaths /min, Pulse oxymetry showing saturation > 93% at ambient air
Severe	Cases meeting any of the following criteria:- Respiratory distress (≥ 30 breaths/min);- Finger oxygen saturation $\geq 93\%$ at rest;- Arterial partial pressure of oxygen (PaO ₂) / fraction of inspired oxygen (FiO ₂) ≤ 300 mmHg (1 mmHg=0.133 kPa)
Critical	Cases meeting any of the following criteria:- Respiratory failure and requiring mechanical ventilation- Shock.- With other organ failure that requires ICU care.

e) Laboratory tests:

Nasopharyngeal swab specimens from the upper respiratory tract that were obtained from all patients at admission and

2019-nCoV was confirmed by real-time RT-PCR. All patients were given chest x-rays on admission. HRCT chest was done in selected patients. In addition, complete panel of routine laboratory tests, including complete blood count, blood biochemistry, CRP, D-dimer, Ferritin and Procalcitonin was also done according to clinical requirement.

Normal or low TC of WBC, Lymphopenia, High CRP, Low Procalcitonin associated with bilateral pneumonia in Chest x-ray or GGO in CT scan of Chest: Diagnosis is COVID-19 during this epidemic³ regardless of RT-PCR positivity .

f) Statistical analysis:

All statistical analysis was carried out using the STATA version 14. Descriptive and inferential statistics were used in this analysis. Frequency and percentages are presented for the categorical variables such as fever, cough & other symptoms and mean \pm standard deviation and median are presented for the continuous variables like age, duration of Hospital stay. t-test & chi-square test was done to assess whether there was any co-relation of severity with Age, duration of hospital stay & gender.

Results:

190 COVID-19 patients(Both RT-PCR positive& negative) from COVID dedicated unit of Popular Medical College Hospital (PMCH) were enrolled in our study during a period of 2 months(18th June to 22nd August 2020), after Popular Medical College officially started treating COVID-19 patients among the Private hospitals in Dhaka.

a) Demographic Characteristics:

The age range of our patients was 12- 86 years. Mean age was 53 years. Highest percentage of patients (44%) belonged to 41-60 years of age (table-01). Regarding gender distribution, two-third patients were male (65%)(n-123)& one-third patients were female (35%) (n- 67) (Table -01)

Table-I: Distribution of patients according to Age

Age (Years)	n	%
0-20	02	1.05
21-40	43	22.63
41-60	84	44.21
61 & above	61	32.11
Total	190	100

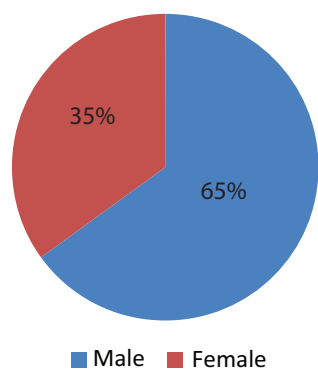


Fig.-1: Gender distribution

b) Clinical Characteristics & Co-morbidites:

Regarding symptoms, fever (88%) with respiratory symptoms like cough(81%) & dyspnea (58%) topped the list, followed by fatigue(50%)(Table-02). Anosmia & altered taste sensation were 2 specific symptoms of COVID-19, which was present in 21% & 14% of patients respectively. Other than respiratory symptoms, patients also present with gastro-intestinal & neurological symptoms. Regarding co-morbidities, around half of the patients had been suffering from Hypertension (54%) and Diabetes (47%), other less common associated co-morbidities & risk factors are shown in Table-03.

Table-II: Symptoms

Symptoms	Present (Number)	Present (%)	Absent (Number)	Absent (%)
Fever	167	87.9	23	12.1
Cough	153	80.5	37	19.5
Dyspnea	111	58.4	79	41.6
Fatigue	94	49.5	96	50.5
Anosmia	40	21.1	150	78.9
Altered Sense of Taste	27	14.2	163	85.8
Sore Throat	59	31.1	131	68.9
Anorexia	38	20	152	80
Diarrhoea	23	12.1	167	87.9
Headache	22	11.6	168	88.4
Vomiting	12	6.3	178	93.7
Chest Pain	08	4.2	182	95.8
Nasal Congestion	08	4.2	182	95.8
Confusion	05	2.6	185	97.4
Dizziness	04	2.1	186	97.9
Conjunctivitis	01	0.5	189	99.5

Table-03: Co-morbidities & Risk Factors

	Co-morbidities & Risk Factors	Present (Number)	Present (%)	Absent (Number)	Absent (%)
Co-Morbidities	HTN	103	54.2	87	45.8
	DM	90	47.4	100	52.6
	Br. Asthma	27	14.2	163	85.8
	CHD	11	5.8	179	94.2
	CVD	8	4.2	182	95.8
	COPD	2	1.1	188	98.9
	CKD	11	5.8	179	94.2
Risk factors	Smoking	37	19.5	153	80.5
	Obesity	01	0.5	189	99.5
	Chemotherapy	01	0.5	189	99.5
	Surgery	01	0.5	189	99.5

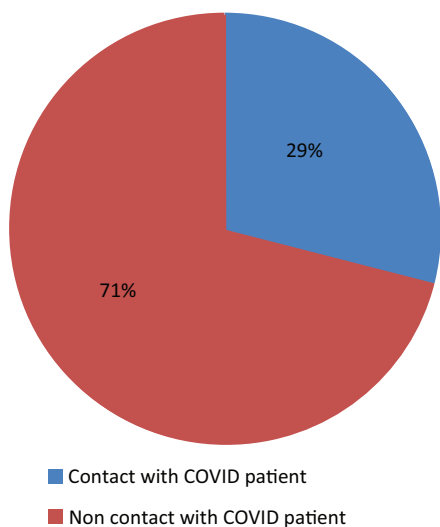


Fig.-2: History of Contact with COVID patient

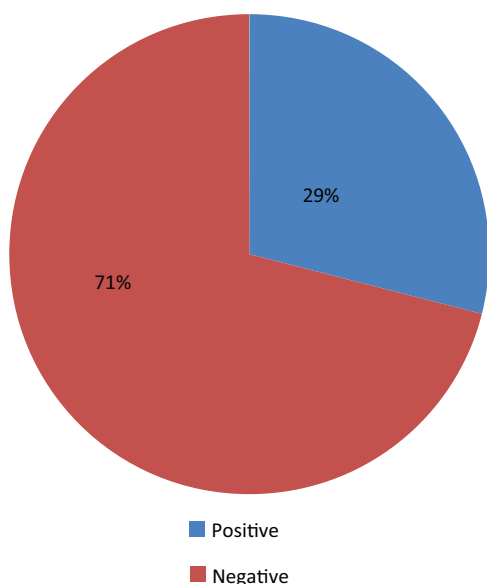


Fig.-3: RT-PCR positivity

d) Grading of Severity:

Almost half of our patients belonged to moderate severity (48%), mild was (29%), severe (22%) & critical only (01%) (Figure-04).

e) Treatment Outcome & Duration of Hospital Stay:

We could discharge almost 80% of our patients with 08% referred for Intensive care & only 03 deaths (Table-04). The duration of Hospital stay was from 1-36 days, mean was 7 days.

c) Contact History & Status of RT-PCR test :

Only less than half of the patients (47%) could mention history of contact with COVID patients (Figure-02), which indicate community transmission. We did RT-PCR of nasopharyngeal swab of all patients, 71% (n-135) came positive (Figure-03).

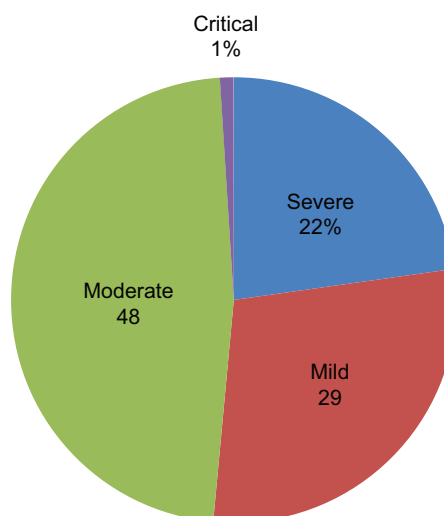


Fig.-04: Grading of severity

Table-IV
Treatment Outcome

Outcome	Total Number (n)	Percentage (%)
Discharged with improvement	151	79.5
Ongoing Treatment in Hospital	21	11
Referred to ICU/ HDU	15	7.9
Death	03	1.6
Total	190	100

g) Association of severity :

It was statistically analyzed & found that age & sex are not significantly different for severe and non-severe cases ($p > 0.05$). But duration of hospital stay is significantly different for severe and non-severe cases ($p < 0.05$). The severely sick patients required longer duration of hospitalization (Table-05).

Table-V: Association of severity with Age, duration of hospital stay & gender:

T-test of mean comparison		95% confidence interval			p-value
	n	Mean Age	Lower	Upper	
Non-severe	148	52.29	49.75	54.83	0.3484
Severe	41	54.85	50.25	59.45	
T-test of mean comparison		95% confidence interval			p-value
	n	Mean Hospital Duration	Lower	Upper	
Non-severe	148	6.37	5.70	7.05	0.018
Severe	41	8.41	6.25	10.57	
Chi Square test of Association					
Gender	Non-severe	Severe	Total		
Female	54	12	66		
Male	94	29	123		
Total	148	41	189		
Pearson	Chi2(1)=0.7361		P value 0.391		

Discussions:

To our knowledge, this observational study report is the largest case study to date of COVID-19 patients in a Private Hospital of Dhaka recruiting 190 cases on the basis of clinical context with typical chest imaging with or without RT-PCR positivity.

In our study population, mean age was 53 years, which is quite similar with the findings of other studies : 55.5 years Chen et al⁴, 51 years Chung et al⁵, 49 years Huang et al⁶, 41.7+ 16.3 years Mowla et al⁷. Infection in children was rare, which was consistent with the results of a study performed by Zhong et al⁸. The presentation of COVID-19 is predominantly mild and asymptomatic in the age group <14. Perhaps the ACE2 receptor is not highly expressed in this age group⁹.

We observed greater percentage of male (65%) than female (35%) affected with COVID-19. Similar male preponderance was found in other studies, 73% of the first reported study of China⁴ or 63% of a study in DMCH, Bangladesh⁷. It has been found that more males were infected by SARS-CoV^{10,11}. Current research suggests that ACE2 is the receptor for COVID-19¹², and its expression in men is higher than that in women¹³, which may be the reason for the higher proportion of men with severe illness. The reduced susceptibility of females to viral infections could also be due to the protection from X chromosome and sex hormones¹⁴.

The symptomatology of COVID-19 was extensively discussed in WHO-China joint report on COVID-19 (n =

55,924)¹⁵. Predominant symptoms are pyrexia 85%, cough 67.7%, productive sputum in 33.4% & dyspnoea in 18.6%¹⁶. This symptomatology is quite similar to our findings: fever (88%), cough with or without sputum production (81%), although our patients suffered from more dyspnea (58%). Studies from Europe first urged the international scientific community that the sudden anosmia or ageusia need to be recognized as important symptoms of the COVID-19 infection¹⁷. In our study, anosmia & altered taste sensation was present in 21% & 14% of patients respectively. Different from SARS-CoV and MERS-CoV infections, is that very few COVID-19 patients show prominent upper respiratory tract signs and symptoms such as rhinorrhea or sneezing suggesting that the virus might have greater preference for infecting the lower respiratory tract⁴. Only 4.2% of our study population had nasal congestion. About half of patients infected by COVID-19 had chronic underlying diseases, mainly cardiovascular and cerebrovascular diseases and diabetes¹⁸; this is similar to our study result : Hypertension (54%) and Diabetes (47%).

It is to be noted that, only 47% of patients could mention history of contact with COVID patients, which indicate there is community transmission & transmission from asymptomatic carriers. RT-PCR was positive in 71% patients. A systematic review of the accuracy of covid-19 tests reported false negative rates of between 2% and 29% (equating to sensitivity of 71-98%), based on negative RT-PCR tests which were positive on repeat testing.¹⁹ That is why, for diagnosis of COVID-19, we did not solely depend on Rt-PCR, rather we gave emphasis on clinical background, chest imaging findings & other laboratory markers.

Mild symptomatic patients usually do not require hospitalization, they can be treated at home with isolation. We did not include critical patients from ICU/ HDU. That is why, majority of our patients belonged to moderate (48%) grade of severity.

Median hospital stay ranged from 4 to 53 days within China, and 4 to 21 days outside of China, across 45 studies²⁰. This is similar with our study, the duration of Hospital stay in our study was from 01-36 days, mean was 7 days. There was significant difference for severe and non-severe cases (p value 0.01). Severely sick patients required longer duration of hospitalization.

Conclusion & Recommendation:

This is an early data, showing the epidemiological and clinical profiles of Bangladeshi COVID-19 patients hospitalized at a Private Hospital in Dhaka. We admit that we have some limitations of our study. The study was done in a single center within a very short time frame on a limited number of samples. Asymptomatic patients, patients with mild symptoms at home and severe cases in ICU could not be included in our study. More detailed patient information, particularly regarding clinical outcomes and follow up, was unavailable at the time of analysis, as some patients were referred & some were still in hospital. So, the outcome of study needs to be further verified by larger sample with multi-center study with extended follow-up. In conclusion, we must give emphasis on early diagnosis, early isolation and early management of all COVID-19 patients to reduce transmission and mortality, thus to save mankind from this invisible enemy.

Acknowledgement:

We are thankful to Ms. Aniq Tasnim Hossain, Research Investigator, icddr,b for analysing the data.

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