Socio-demographic and clinical profile of the COVID-19 positive cases among the patients attending in the fever clinic of a tertiary care hospital of Bangladesh

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Abstract

Coronavirus disease-2019 (COVID-19) caused by the virus SARS CoV 2 is a major global health concern nowadays. Bangladesh is also confronting this highly transmissible disease with an exponentially rising number of cases across the country. This study was designed to observe the socio-demographic characteristics and clinical profile of COVID-19 patients in Bangladesh is still very scanty. In this cross-sectional observational study, a total of 662 COVID-19 positive patients were enrolled following selection criteria who attended the fever clinic at BSMMU. COVID-19 was found to be more prevalent in males as the male to female ratio was 2.5:1. The mean age was 37.50 ± 12.14. Most of them belong to the 31-40 year age group. Among the patients, 41.8% were obese. DM, hypertension and bronchial asthma are the most common comorbidities. The most frequent symptoms were fever 80.8%, cough 36%, anosmia 21.8% and runny nose 1.7%. Most of the patients sought healthcare for fever 77.6 %, cough 23.3 %, dysgeusia 13.3% and anosmia 21.7 %. About 86.6 % had no history of contact with positive cases. Most of them had been BCG vaccinated previously.

Introduction

During the last two decades, several infectious disease outbreaks have occurred globally, including Ebola, Influenza A (H1N1), Severe Acute Respiratoty Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and Zika. Lately, Coronavirus disease 2019 (COVID-19), has had a huge worldwide impact concerning economic damage, burden on health resources and, most importantly, human health.[1]

Corona virus disease 2019 (COVID-19) is a potentially lethal respiratory illness caused by a newly identified corona virus, named COVID -19, which was first recognized in December 2019 in Wuhan, in Hubei Province, China. The World Health Organization (WHO) was forced to declare it a global pandemic on March 11, 2020, due to its fast spread across the globe in such a short period of time.[2]

The disease has spread rapidly, affecting more than 220 countries and territories, and as of July 25, 2021, 193 608 043 confirmed cases and 4 154 580 deaths have been officially reported worldwide. The first COVID-19 case was identified in Bangladesh on March 8, 2020. Since then, 19 274 deaths with a total of 1 164 635 confirmed cases have been reported in Bangladesh as of July 25, 2021.[3]

The clinical spectrum of SARS-CoV-2 infection appears to be wide, encompassing asymptomatic infection, mild upper respiratory tract illness, and severe viral pneumonia that could lead to severe acute respiratory distress syndrome (ARDS) and even death.[4]

Around 80% of COVID-19 infections manifest as mild respiratory diseases which usually do not require hospital care. Around 15% of people require hospitalization and only 5% develop a serious disease that necessitates more intensive treatment.[5]

The main clinical presentations include fever and respiratory symptoms like cough and dyspnoea. But patients with atypical manifestations like gastrointestinal, neurological,

cardiovascular and ocular symptoms with or without respiratory symptoms or only very few symptoms are on the rise all over the world. [6]

It is difficult to detect, trace, and isolate new cases due to transmission from both symptomatic and asymptomatic patients.Understanding the transmission patterns in various settings can provide crucial information regarding the progression of the pandemic, particularly in densely populated countries with unequal access to health services.[7]

Because of the difference in socio-demographic profiles between countries, it is always important to understand regional characteristics. Understanding the profile of sociodemographic variables is essential for health and public authorities to plan an effective strategy to combat the COVID-19 pandemic.

In this study, we present the sociodemographic profile and clinical characteristics of 662 confirmed COVID-19 patients attending the fever clinic at BSMMU. The purpose of this study was to observe the socio-demographic and clinical variation among the patients affected by COVID-19 as well as to find out any atypical presentations and to evaluate the association of different comorbidities with COVID-19 infection in the Bangladeshi population.

Methods

This cross-sectional observational study was conducted in the department of Internal Medicine at Bangabandhu Sheikh Mujib Medical University. Adult patients (18 years to 70 years) who attended the Fever Clinic, BSMMU and eventually were diagnosed with COVID-19 on the basis of positive RT-PCR were included in the study population. Patients who were unable to communicate (critically ill, mute, patients with psychiatric disorder, dementia, hearing impairment) were excluded.

A total of 662 patients were included in this study by convenience sampling. This study was conducted for six months following approval from the Institutional Review Board (IRB). Samples were collected from the list of COVID-19 positive cases attending the fever clinic based on convenience sampling technique. RT-PCR positive COVID-19 cases were identified with the help of the Information Technology Department of BSMMU for which prior approval had been obtained from the concerned authority. Selected patients were called over the phone to take their verbal consent to be included in the study. Patients who did not answer after calling at least three times were regarded as

non-responders. Data was collected using a structured questionnaire containing all the variables of interest by three research assistants. The highest level of confidentiality and ethical standards were maintained during the study procedure.

Descriptive statistics were used during analysis, where continuous variables were expressed as the mean ± standard deviation and categorical variables were expressed as frequency and percentage. To test the difference, chi-square test was performed as appropriate. The data was analyzed with the statistical software SPSS 25.

Prior approval was obtained from the National Research Ethics Committee (NREC) of BMRC. In keeping with the Helsinki Declaration for Medical Research Involving Human Subjects 1964, all the study subjects were informed verbally about the study design, the purpose of the study and potential benefits derived from the study. They were also assured that they had full right to withdraw themselves from the study at any time for any reason. Subjects who had given informed consent to participate in the study were included in the study sample.

Results

A total of 662 patients with confirmed COVID-19 by RT-PCR were included in the study. The socio- demographic profile of the participants is summarized in Table-I. The majority (35%) of the study subjects were in the age group of 31-40 years. The age of the respondents ranged between a minimum of 10 years to a maximum of 75 years. The mean age of participants was 37.50 ±12.14 years. Most of the patients were male (71%). The male to female ratio was 2.5:1.

Regarding level of education, 210 (31.7%) completed graduation, 31.7% were at postgraduate level and only 8 (1.2%) were illiterate. Cases were more frequently found in families where 3-4 and 5-6 people lived in the same household. 86.6% had no contact history with confirmed patients or with people having definite symptoms of COVID-19.

Among the respondents, 80.5 % were non-smokers and 15.0 % were current smokers. The mean duration of smoking was 9.43 ± 5.81 years. Most of the patients were obese (41.8%) or overweight (30.8%) while 24.3 % had normal weight and 3% were underweight.

Most of the participants were BCG vaccinated previously (80.1%) and 19.9% were not vaccinated.

Most of the patients' (186, 28.1%) family income ranged between 30000 and 40000 taka monthly. On the contrary, 9.8% had a family income of more than 50000 taka and 7.1% had a

family income of less than 10000 taka monthly. Among the study subjects, 157 (23.7%) were non-govt. service holders, 94 (14.2%) were bankers, 87 (13.1%) were businessmen and 81 (12.2%) were students. (Table - I)

Fever was the most common presenting complaint (80.8%), followed by cough (36%), runny nose (17.7%) and anosmia (21.8%). Only 95 (14.4 %), 74 (11.2%) and 36 (5.4%) complained of headache, weakness, and loose motion respectively.

Table-I			
Sociodemographic characteristics of the respondents (N=380)			
Variables	Findings	Variables	Findings
Age (years)	37.50 ±12.14	40000-50000	87(13.1)
Age group (years)		>50000	65(9.8)
< 20	32 (4.8)	Occupation	
21-30	178(26.9)	Doctor	34(5.1)
31-40	232(35.0)	Other health care worker	17(2.6)
41-50	116(17.5)	Police	2(0.3)
51-60	72(10.9)	Student	81(12.2)
61-70	30(4.5)	Homemaker	72(10.9)
>70	2(0.3)	Farmer	2(0.3)
Sex		Day laborers	2(0.3)
Female	192 (29)	Businessman	87(13.1)
Male	470 (71)	Govt. Service	65(9.8)
Education		Non-government service	157(23.7)
Illiterate / Can sign only	8(1.2)	Banker	94(14.2)
One to five years	20(3.0)	Others	49(7.4)
Five to ten years	60(9.1)	History of contact	
Eleven to twelve years	60(9.1)	Yes	89(13.4)
More than twelve years	146(22.1)	No	573(86.6)
Graduate	210(31.7)	Smoking history	
Postgraduate	158 (23.9)	Non-smoker	533(80.5)
Family members		Past smoker	30(4.5)
1-2	83(12.5)	Current smoker	99(15.0)
3-4	267(40.3)	BMI (kg/m2)	
5-6	266 (40.2)	Underweight (<18.5)	20(3.0)
7-8	38(5.7)	Normal weight (18.5-24.9)	161(24.3)
>8	8(1.2)	Overweight (25.0-29.9)	204(30.8)
Monthly income (Tk.)		Obese (>30.0)	277(41.8)
<10000	47(7.1)	BCG vaccination	
10000-20000	159(24.0)	Vaccinated	530(80.1)
20000-30000	118(17.8)	Not vaccinated	132(19.9)
30000-40000	186(28.1)		

Continuous data is expressed as mean±SD and frequency data is expressed as counts (percentage)

Among symptomatic COVID-19 patients, the average duration of illness was nine days, ranging from 7 to 10 days. (Table - II)

Table II			
Clinical Characteristics of the Respondents (n=662)			
Clinical features	Frequency	Percentage (%)	Mean duration of symptoms in days (Mean+ SD)
Cough	241	36.0	5.9±3.4
Fever	535	80.8	4.3±2.3
Runny nose	117	17.7	3.8±1.9
Shortness of breath	26	3.9	2.7±1.4
Chest pain	6	0.9	3.1±0.9
Loose motion	36	5.4	3.4±2.4
Headache	95	14.4	2.4±1.3
Anosmia	144	21.8	7.2±2.3
Weakness	74	11.2	6.0±1.8
Chills and Rigor	1	0.2	3.0
Disorientation	3	0.5	3.1±1.2
Sore throat	30	4.5	4.0±2.1

Most of the patients sought healthcare for fever (77.6%), followed by cough (23.3%), dysgeusia (13.4%), runny nose (7.9%) and anosmia (7.3%). (Table - III)

Table III		
Healthcare seeking behaviour of the Respondents (n=662)		
Symptoms made the patients seek healthcare	Frequency	Percentage (%)
Cough	15	23.3
Fever	514	77.6
Runny nose	52	7.9
Shortness of breath	12	1.8
Chest pain	1	0.20
Loose motion	14	2.1
Bodyache	40	6.0
Headache	22	3.3
Anosmia	48	7.3
Dysgeusia	89	13.4

A total of 69 patients had one or more co-morbidities and among them, the most prevalent diseases were DM (22), hypertension (13) and bronchial asthma (13). Twelve patients had multiple co-morbidities. (Table - IV)

Table IV			
Comorbid conditions of the respondents (n=69)			
Chronic disease	Frequency	Percentage (%)	Mean duration of disease (years) (Mean+ SD)
DM	22	3.3	8.55 ± 6.82
BA	13	2.0	8.77 ± 5.57
COPD	3	0.5	4.67 ± 2.08
IHD	2	0.3	6.50 ± 4.95
HTN	13	2.0	8.43 ± 8.11
Cancer	1	0.2	2.00
CKD	1	0.2	2.00
Stroke	2	0.3	3.00 ± 2.83
DM+BA	1	0.2	1.00
DM+IHD	1	0.2	5.00
DM+HTN	6	0.9	8.50 ± 5.09
DM+COPD	1	0.2	7.00
BA+HTN	3	0.5	20.53 ± 12.32

Discussion

Data was collected from a total of 662 Bangladeshi patients with COVID-19 confirmed by RT-PCR from July 2020 to December 2020. The mean age of participants was 37.50±12.14 years. This finding matched with the studies conducted in Asia, e.g. China (47 years) and India (40.3 years). [4, 8] But the median age was found to be higher in studies conducted in the USA (63 years) and Italy (67.5 years). [9, 10]

The age group most affected was 31-40 years (35%). The age distribution of COVID-19 patients in Bangladesh is similar to that in India, China and other reports from Bangladesh, but differs from that in the USA and Italy.[4,8-10] A possible reason for this finding may be due to the higher percentage of young people in the developing countries of Asia than in the developed countries.

The proportion of male patients in our study was significantly higher. We found a male predominance (71%) that corresponds to the overall COVID-19 status of the country till date (66%).[3] This gender disparity in COVID-19 case identification could be attributable to Bangladesh's social context, which includes women's limited mobility and access

to healthcare, as well as their fear of social stigma. This underreporting of female patients could be a potential cause of the rapid spread of the disease.[11] Till date, almost all studies conducted in different parts of the world have shown male preponderance. [8-10,12] Sex-based differences in immunological responses, as well as hormonal mediators, may also play a role.[13]

More than 40% of patients were found to be obese in our study. A systematic review showed that obese individuals are at a 46% higher risk of being tested positive for COVID-19.[14] Furthermore, like previous viral pandemics, obesity is linked to an increased risk of hospitalization and mortality in SARS-CoV 2 infection also.[15]

The most prevalent presentation was fever, followed by cough, runny nose, anosmia, breathlessness, headache and weakness in decreasing order. Fever was the complaint of 80.8% of patients, while 36% of patients complained of cough. This finding is consistent with early reports from China and other reports from Bangladesh. [4,16-18]

The only gastrointestinal symptom that was found in our study was loose motion or diarrhea. A review of case reports and retrospective clinical studies also showed that diarrhea is

the most common gastrointestinal symptom of COVID-19, while anorexia, vomiting, nausea, abdominal pain, and gastrointestinal bleeding are less common. [19]

Among 662 patients, 21.8% of patients complained of either anosmia or dysgeusia. This proportion is higher than the previous reports from Bangladesh.[18,20] As a result of their rising prevalence, new onset taste or olfactory disorders are being recognized as important criteria for testing worldwide, particularly in young people who have few or no symptoms. [6]

Among other atypical symptoms, we found chest pain in six patients. Though rarely found in the absence of COVID- 19 pneumonia and pre-existing cardiovascular disease, the incidence of chest pain is reported to be 1.6–17.7%. Chest pain may result from myocardial injury or pleural inflammatory reaction or even pulmonary embolism due to increased risk of thrombo-embolism by COVID-19.[21]

We found headaches in 95 patients and confusion or disorientation in 3 patients. Although headache is the most common neurological symptom of COVID-19, confusionor disorientation is not uncommon. [22] A retrospective study in China showed that 9% of patients presented with confusion. [12]

Diabetes (22%), hypertension (13%) and bronchial asthma (13%) were the most common comorbidities found in our patients. This finding is consistent with studies around the world.[23,24] Twelve of these patients had multiple co-morbidities and one patient had cancer.

It is important to note that 86.6% of patients had no history of contact with known cases or symptomatic individuals. This highlights the importance of finding a more effective way to prevent transmission from asymptomatic and subclinical cases and efficient contact tracing.

Conclusion

In our study, we found that most of our patients were male. Middle-aged people are more affected and the most common co-morbid conditions are diabetes, hypertension, and bronchial asthma. Fever and cough are the most common presentations, whereas people sought healthcare for fever and dyspnoea mostly. Atypical symptoms like anosmia and dysgeusia were found in significantly higher numbers. Most of the participants did not have any history of contact with COVID-19 patients. So, community-based monitoring and contact tracing capacities should be enhanced.This is the preliminary information on the sociodemographic and clinical features of COVID-19 patients who visited the fever clinic at BSMMU. A large sample, multi-center investigation with prolonged follow-up should be planned to find out the impact of these factors on the clinical outcome of COVID-19.

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