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# Covid-19 and Bangladesh

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## 1 Background

Coronaviruses (CoVs), large families of enveloped RNA virus, cause common cold to severe respiratory diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV) [1]. Coronavirus disease (COVID-19) appears with the emergence of a novel coronavirus (nCoV) that has not previously detected in human beings [1]. Center for Disease Control (CDC), USA, stated that the confirmed COVID-19 cases might have mild symptoms to severe illness and death [2]. The main symptoms of COVID-19 infection are fever, cough, and shortness of breath, which may appear after 2-14 days of exposure to the virus. The emergency warning signs for getting immediate medical attention are trouble breathing, persistent pain, or pressure in the chest, new confusion, or inability to arouse and bluish lips or face [2].

World Health Organization (WHO) confirmed that the current outbreak of COVID-19 was first reported from Wuhan, China, on December 31, 2019. Considering the severity and fast spread of COVID-19, WHO has announced a global emergency on January 30, 2020, and officially called an outbreak as pandemic on March 11, 2020 [3]. **To date, 176 countries, including Bangladesh, have reported total of 537,808 confirmed cases of COVID-19, leading to 24,127 deaths over the world as of March 27** [4]. The first COVID-19 case was identified in Bangladesh on March 7, 2020. Since then, five deaths of the total 48 confirmed cases are reported in Bangladesh as of March 27, 2020 [5].

There is minimal data, with no analysis of Covid-19 scenarios in the Bangladeshi population. While there are drawbacks associated with the collection of Covid-19 case data sets, they are important to understand the current pattern in virus infections. Bangladesh must be able to use the data in tracking progress in eliminating the pandemic to ensure that attempts are taken to avoid such types of a pandemic. The research is required to add new questions that will help to stratify the data by socio-demographic, healthcare and clinical factors.

The pandemic has taught us how quickly a new disease can take hold and spread. A clinical and epidemiological knowledge and study explosion needs comprehension. The purpose of this report is to open up whatever tools we can to support Bangladesh's public health authorities, researchers, and clinicians to contain and manage this situation. We will be supplying a weekly revised report to our scientific community.

## 2 The Covid-19 cases in Bangladesh

The Institute of Epidemiology, Disease Control and Research (IEDCR) reported four new cases on March 27, 2020, in the coronavirus pandemic, taking its total to 48 cases [6]. Due to Covid-19 we lost five human lives in the region. According to the IEDCR, currently, 50735 people are in isolation and 4471 in institutional quarantine. In the last 24 hours a hundred and six more people have been screened for coronavirus, bringing the total number to 1026.

Figure 2 shows the incidence distribution, and Figure 3 shows the cumulative number of reported cases of COVID-19 in Bangladesh from March 7 to March 27, 2020, respectively [1]. On March 23-24 the highest number of positive cases (6 new cases per day) was detected, and the second highest

number (5 new cases) was detected on March 26. Between 15 March to 27 March, approximately 3.7 positive cases were confirmed every day (Figure 2). As time increases it appears a increasing pattern of new cases. The first COVID-19 death case was confirmed on 12th March (Figure 3). To date, COVID-19's death rate (10.4%) was more than twice that of Bangladesh compared with the global average mortality rate (4.5%). Of those positive cases, as of March 27, about 23% of cases were recovered (Figure 3).

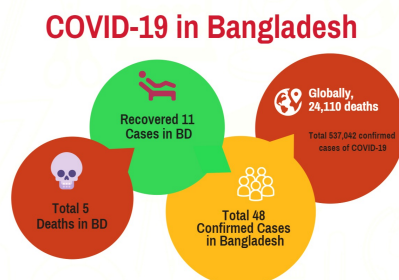


Figure 1: Snapshot of Covid-19 cases in Bangladesh (Source: IEDCR).

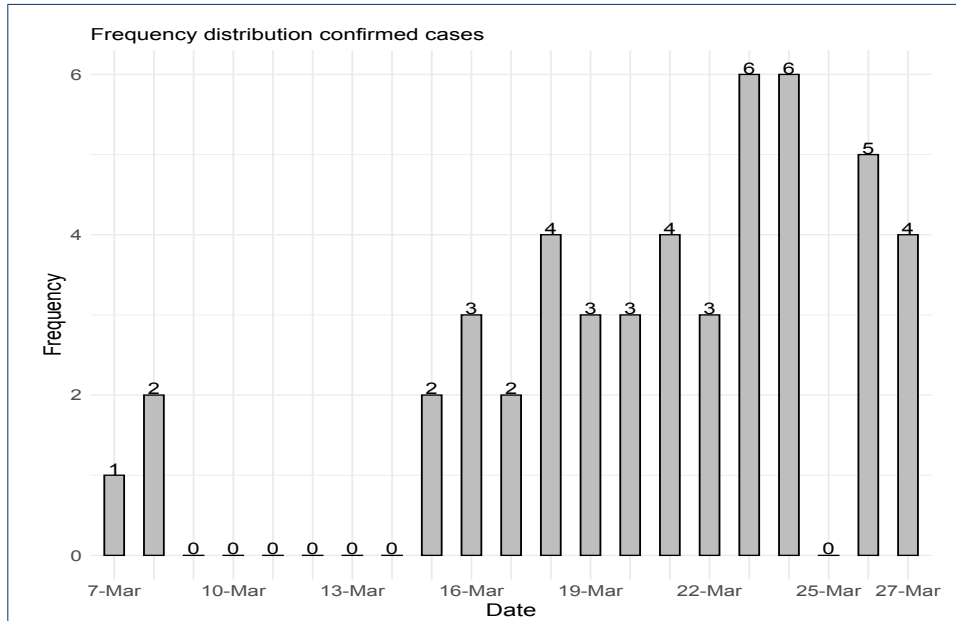


Figure 2: Frequency distribution of confirmed cases in Bangladesh (Update: March 27, 2020).

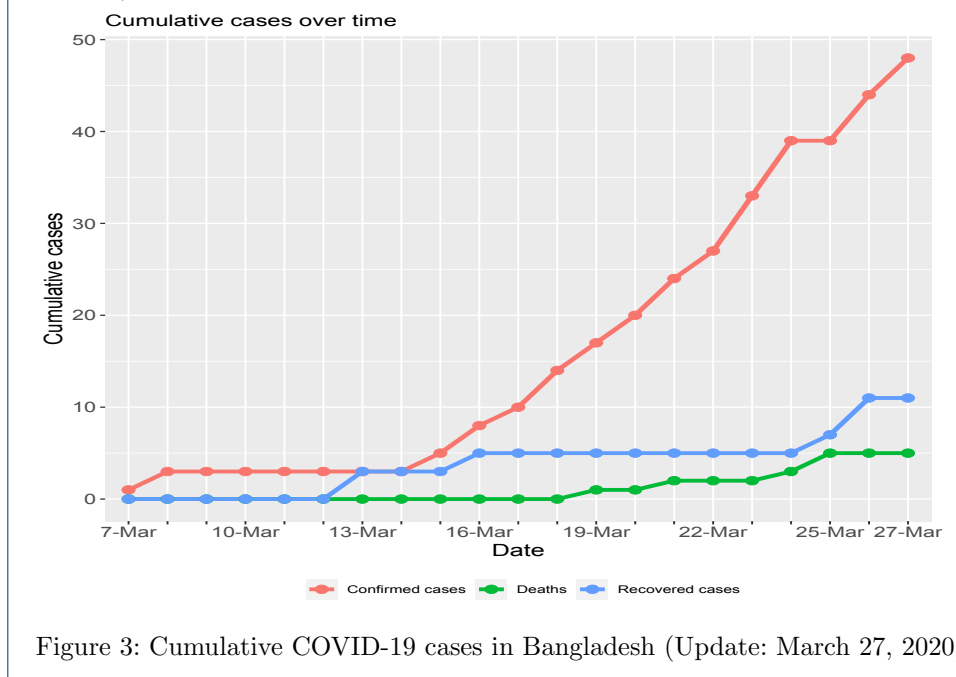
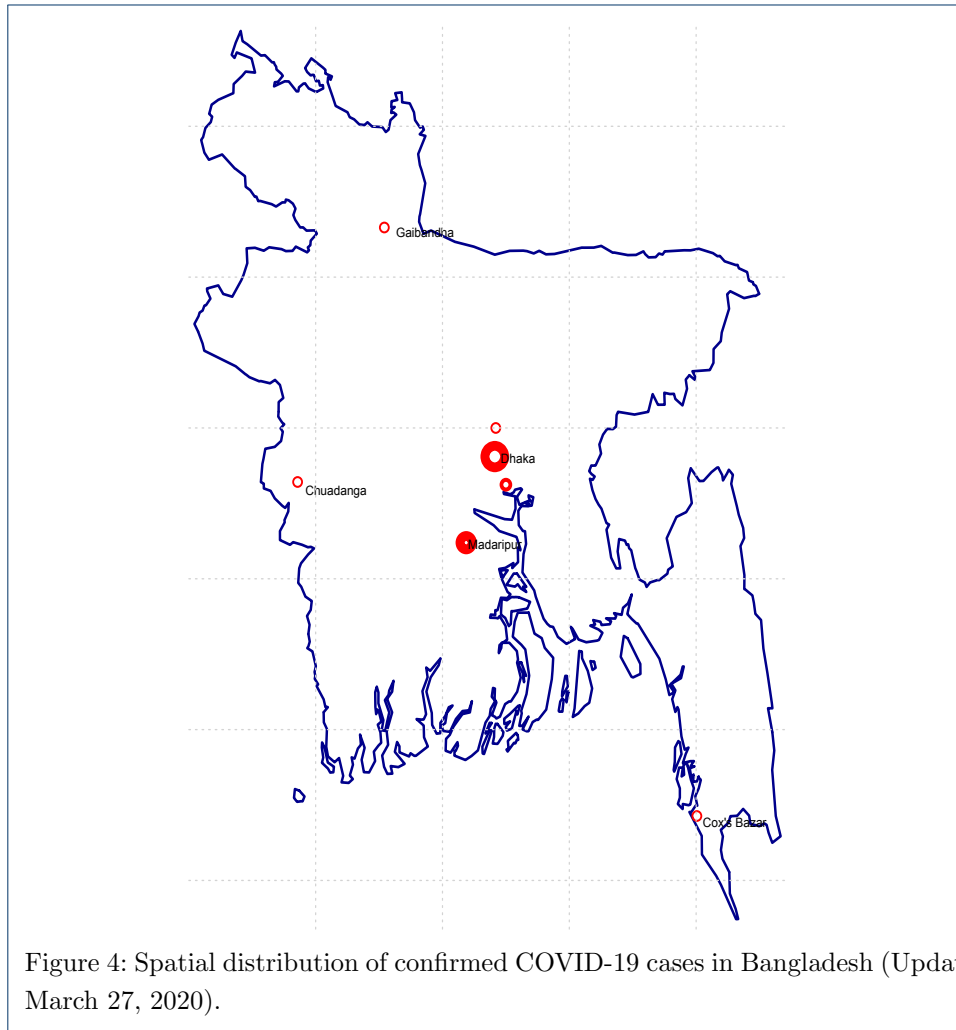


Figure 3: Cumulative COVID-19 cases in Bangladesh (Update: March 27, 2020).

### 3 Spatial distribution of confirmed COVID-19 cases

Figure 4 displays the spatial distribution of confirmed COVID-19 cases across the country between 7 March and 27 March 2020. The most affected area was the capital city, Dhaka where 17 confirmed cases were in Dhaka out of a total of 41 cases. The location of remaining 7 confirmed cases data were unknown. It should be noted that due to the centralized case detection center in the capital city, Dhaka, and inadequate logistics in remote areas the number of reported COVID-19 cases that underestimate the true number of all cases.



### 4 Age and gender distribution of Covid-cases in Bangladesh

The breakdown by gender given in Figure 5 shows that the incidence of the virus has been recorded more often among men in Bangladesh. It is because more male cases returned from outside of the country after the outbreak started. We also found that four out of five deaths were male, and the gender is unknown for one death. In the initial Wuhan, China, outbreak, for example, men were dying at a notably higher rate than women. We have seen the same trend in Bangladesh. But we will need more research and data to be sure about the effect of gender on a patient’s prognosis.

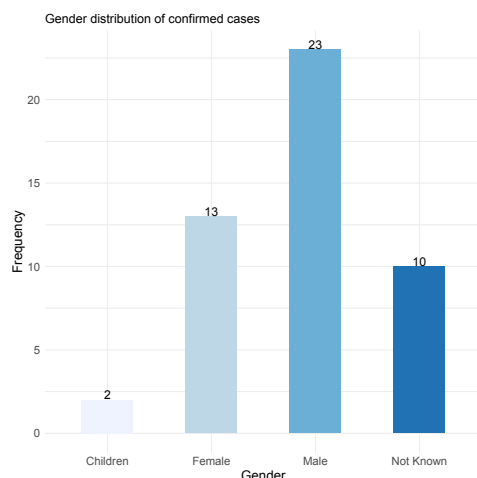


Figure 5: Gender distribution of confirmed COVID-19 cases in Bangladesh (Update: March 27, 2020).

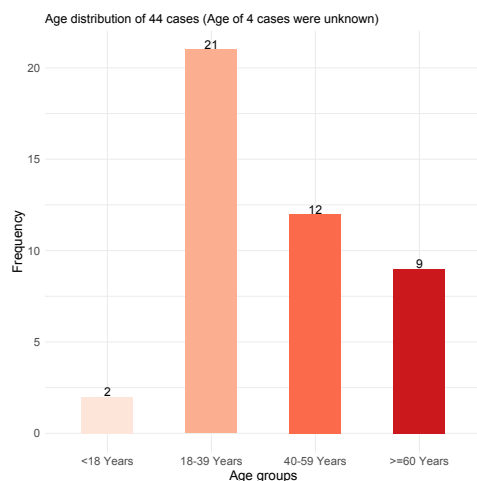


Figure 6: Age distribution of confirmed COVID-19 cases in Bangladesh (Update: March 27, 2020).

Different people have different risks of getting severe symptoms that require hospitalization or intensive care, and the chances of dying from Covid-19 vary widely across age groups. Figure 6 shows the confirmed COVID-19 cases by age groups in Bangladesh. The highest number of infections remains within the age group between 18-39 years. It is because most of the returnees from outside of Bangladesh were in the age group 18-39 years.

Moreover, twelve cases were in the age group between 40-59 years, and another nine cases were more than or equal to 60 years old (Figure 6). Besides, two children (<18 years) were infected by the virus. All of the recovered cases were under 40 years old. It also appears in the analysis that all the death cases were more than 60 years old, and all of the cases had at least one comorbid condition. The graph confirms that older adults with comorbid conditions were more susceptible to die from COVID-19, which is consistent with much-existing literature. Therefore, it is the older people, we need to worry about, given death rates reach 100 percent or more among people 60 and older.

### 5 Routes to disease spread in Bangladesh

We focused on the potential routes COVID-19 spread instead of disease transmission in Bangladesh. The disease is predominantly transmitted via the respiratory tract with high infectivity. It is commonly recognized that droplet transmission is the main route. It was also reported that the virus was also found on the surface of the door handles, cell phones, and other items in the residential sites of confirmed cases [8]. Therefore, individuals will probably be infected if they touch the nose, mouth, or eyes after contacting the contaminated items. Till today, the final outline of transmission routes of the virus has not yet been drawn. Figure 7 discusses the routes to disease spread in Bangladesh. It appears that many returnees came from Italy and brought the virus in the country. The other returnees were from India, the US, Saudi Arabia, Bahrain, Germany, and Kuwait, who brought the virus in Bangladesh. The family members were also affected by these returnees. Till today, few of the cases were found who were transmitted from the patients.

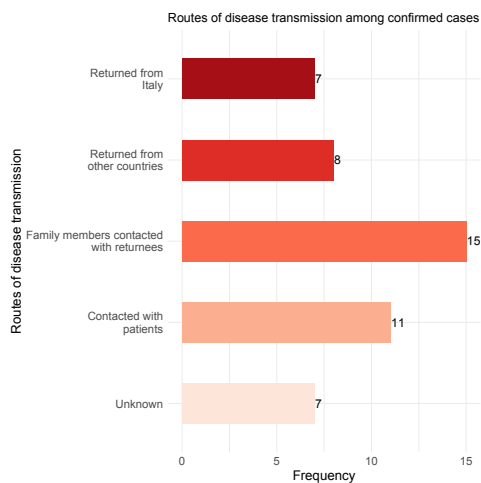


Figure 7: Routes to disease spread in Bangladesh.



## 6 Future goals

The COVID-19 pandemic has devastated people's lives worldwide and brought about sweeping social change. The schools and workplace closures are expected to reduce the number of COVID-19 cases and significantly postpone the outbreak peak so we can control the pandemic in Bangladesh. A delayed return to work in mid-April may significantly reduce the median number of new infections. We also want to prevent a second peak this year — relieving pressure on health systems in the months to come. The coronavirus pandemic and the subsequent advice of staying at home, if at all possible, avoiding convening with others and preventing close encounters even on the street has exacerbated the harm caused by factors that are already isolating people and isolating many of the antidotes. But, attempts to avoid coronavirus prevention can increase the risk of physical and emotional harm from limited social contact. In future reports, we will include two important parameters in the context of Bangladesh:

- 1 Hospitals plan in Bangladesh for COVID-19, and
- 2 Effect of physical distancing measures.

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