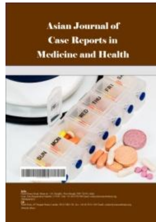

Asian Journal of Case Reports in Medicine and Health

5(1): 18-26, 2021; Article no.AJCRMH.57371

The State Programmed Preparedness for COVID-19 Speedy Transmission Controlling

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Authors' contributions

This work was carried out in collaboration between both authors. Author AR designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author DPH managed the analyses of the study. Both authors read and approved the final manuscript.

Article Information

Editor(s):
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(2) Dr. Arun Singh, Rohilkhand Medical College & Hospital, India.
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Complete Peer review History: http://www.sdiarticle4.com/review-history/57371

Case Study

Received 29 September 2020
Accepted 01 December 2020
Published 15 March 2021

ABSTRACT

This paper is constructed on the secondary data mostly taken from recent publications, organizational webpage information publicity, and online newspaper articles in order to make a case study on the COVID-19 preparedness from the state authority of Bangladesh. This paper takes two- tiers study: Pre-incident arrangement and during- incident arrangement for normalization of rapid transmission of coronavirus pandemic across the country. This paper critically evaluates what the demographic setup the country possesses to justify the galvanizing critical concerns for coronavirus infection, how the state authority delayed at precautionary stage to make all concerned sectors prepared against any mass infection, and how the state authority acted amid the considerable cases identification tackling crowding of people, ensuring social distancing etc. This paper tends to highlight the grieving situation on three dimensions: the impact of mass entry of Expatriate Bangladeshis from viral infected countries, the deplorable preparations of health sectors and the apparent suicidal impact of lock down on the people of Bangladesh. Few recommendations emerged through the case study which has been attached as time befitting steps which should be taken for granted amid this surging concern.

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Keywords: COVID-19; preparedness; transmission; controlling; Bangladesh.

1. INTRODUCTION

The nature and the courses of COVID-19 is somehow established as a super-spreader as WHO was reported on 31st December, 2019 a new case of pneumonia from an unknown etiology which was subsequently characterized as SARS-CoV-2 that aided to cause COVID-19 on 7th January [1]. Even this heinous virus takes out as a pandemic as quick as it could not have been imagined. It is a RNA virus that afforded it rapid rate of mutation. It is also reported that it changed its scope of operation travelling through China, Europe, and America to Middle East. Due to this changing nature of coding, countries like India has discovered the genome sequencing of COVID-19 that is devastating India. It is urgent to identify virulence of that virus existing in that specific land if it may be possible to invent any preventive or curative vaccine or medication. This effort combatting against this pandemic is merely laboratory criteria; lots need to be emerged through the state operation as the behavior and habit of the populace have also been guided to follow controlled norms and etiquette like social distancing, 14 days home quarantine, abiding by the rules and regulations of national or regional lock down in respect of slowing the community transmission of this super-spreader. Hence, clinical or laboratory process for this disease can have little effect from checking mass mortality and morbidity if the behavioral changes emerged through the activities and practices of the populace cannot be ensured. Hence, the state claims centile liability in this regard. The failing of the state in this respect can have dire consequences on its population that USA and Italy are experiencing. COVID-19 case was first identified in China in December, 2019 and in India on 31st January [2] both of which are bordering countries of Bangladesh and lots of Bangladeshis are visiting these countries on regular basis for medical, educational as well as business purpose. The first COVID-19 positive case was identified on 8th March, 2020 in Bangladesh that extends the idea that the state authority got 3 more months, upon the identification of positive cases in China, for their probable preparations [3]. As of month of April after the first corona virus positive was identified the COVID-19 positive patients update is as follows: 54 positive cases are identified in the capital city from 29 different, 10 more districts are already infected by this coupling 34 positive cases. The late update from the IEDCR (Institute of Epidemiology Disease Control and Research, Bangladesh) reveals that the virus is not at the stage of community transmission as the identified cases cannot be ensured as having contact from persons recently arrived from abroad or virus infected countries like Italy, USA, China, India etc. At this event, this paper tends to study (i) whether the government had strategic level concern regarding its impact on Bangladesh after the first case identified in China, (ii) whether the government took proper precautionary measures before the first case was identified in Bangladesh, (iii) whether the government could take proper steps during the period of COVID-19 positive patient identification. These interrogations lead to a study hypothesis that (a) the state authority could have taken proper pre-disaster and during-disaster measures and a null hypothesis needs to be initiated to prove or disprove the study hypothesis that (b) the state authority could take proper pre-disaster and during-disaster measures to slow down the pandemic situation.

2. THE DEEPENING CONCERN AS PER DEMOGRAPHIC DISTRIBUTION

159,453,001estimated people live in the 1, 47,570 square kilometer of land areas comprising 1,115.62 people/square kilometer. The capital city is resided by 47,400 people per square kilometers thus approves its classification of one of the densely populated listed countries of the world [4]. Leslie Goldman has guided that social distancing does not only mean the shuttering down of parks, malls and places of social gatherings but also emphasize six feet distance from one person to another as she reveals that 25% of the cases are identified asymptomatic. However, the member close to that positive patient does not know whether the next person is infected [5]. The Fig. 1 taken from Leslie Goldman expresses the state of coronavirus spread in community level. If the rate of density prevailing in Bangladesh is considered this guided social distancing (individual distancing) is illusive. The health and sanitation situation is also a matter of concern as the source of drinking water is unimproved for the 13.5% urban population and 13% rural population; 42.3% of urban population and 37.9% of rural population do not have sanitation facility access also. The major infectious diseases range from diarrhea by bacteria or protozoa to dengue fever, typhoid fever and

malaria along with hepatitis A and E. The health expenditures for this country people is 2.4% while the state of medical infrastructure and services is meagre rated 0.53 physicians/1,000 population, 0.8 beds/1,000 population [4]. This sanitation situation and the provision of health and medical facilities for the 159,453,001estimated people come to the fore at the eve of great concern regarding clinical and laboratory provisions to test the probable cases of corona virus and treat them well.

The pre-disaster protection or the during-disaster protection for this viral infection is lock down of areas to confirm mass quarantine and social distancing. The minimal period for this distantness is 14 days. This precautionary step must pose negative effect on the populace of Bangladesh when the labor market scenario is considered as evidence. The World Employment and Social Outlook-2019 published by International Labor Organization speculates that the unemployment rate for Bangladesh remains 3.6% while other south Asian countries retain to 5.6%. But the major concern for the labors of Bangladesh is that almost all the jobs are of poor quality as workers cannot ensure economic security, fair and decent living, even medium range of pay, job security and protection. Again, the women labor force faces even dire challenges as 80% of female workers are engaged in RMG (Ready Made Garments) who are paid less than $100 [6]. Again, a study finds that rickshaws are estimated at 7, 65,000 in Dhaka which are run by 1 million of people for their daily living [7] that implies the lock down plunges the families of these members into uncertainty. When the labor market of Bangladesh projects this bordering limit of probable poverty or pay as work situation, the state authority needs to brood over some consequences of (i) how these people will serve their family, (ii) how state will enable to provide them with daily feeding and (iii) how long these people will survive in the event of lock down for undefined time.

The labor market outlook evaluated previously posits the interior threats of managing all these people during the prolonged probability of shut down. Again, Bangladesh has to face even dire consequences when the immigrant labor market outlook is considered. Bangladesh exports 100000 immigrants to various countries as workers and BMET (Bureau of Migrants Employment and Training) estimates that, a total of 12,199,124 Bangladeshis have migrated overseas for employment from 1976 to 2018 and they transmit $16 billion of remittance to Bangladesh. The loss of remittance flow from overseas due to COVID-19 pandemic is a matter of concern; but the greatest concern over this issue is otherwise. Our destination countries along with Middle Eastern countries are Malaysia, Singapore, USA, Spain, Italy, UK, India which are now affected by corona virus pandemic and it is estimated that 100000 migrant workers, students, professional practitioners entered Bangladesh from January to March before the Civil Aviation Authority of Bangladesh suspends flights with 10 counties -- Malaysia, Oman, Singapore, Qatar, Kuwait, Saudi Arabia, United Arab Emirates, Turkey, India, and Bahrain except China, UK, Hong Kong and Thailand on 21st March [8]. Though they were diagnosed at airport before entering the mainstream of Bangladeshi population, they were not managed to send to officially programmed quarantine the failure of which may produce consequences for this country.

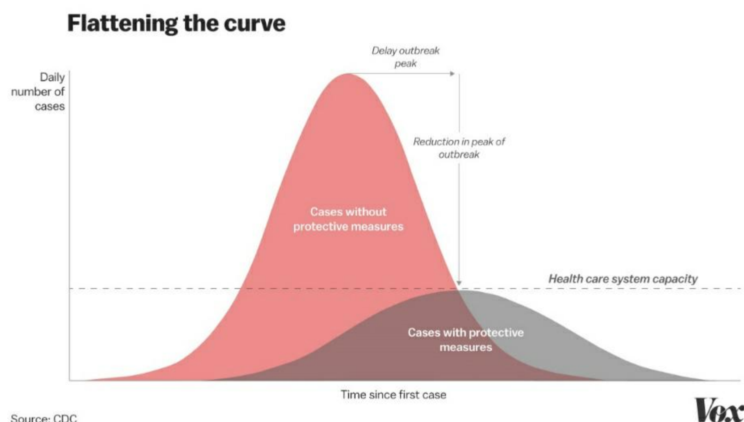

Fig. 1. The flattening curve of community transmission of the infection

Hence, the demographic distribution of Bangladesh exposes a trajectory of triangle threats on the country amid deepening concern of corona virus transmission. Firstly, the diagnosis, treatment and medication for the COVID infected patients are little than necessary; secondly, most of the workers of Bangladesh earn as much as they can lead a marginal life which means the failure of labor market will lead to unexplained misery; thirdly, the entrance of Bangladeshi people from COVID infected countries to Bangladesh brings on implied threat of rapid transmission of this pandemic.

3. THE COVID-19 CASES OUTLOOK IN BANGLADESH

It is stated previously that the three cases of coronavirus were confirmed for the first time on 8th March, 2020 which the IEDCR director confirmed at the official briefing that two persons who were detected corona virus positive recently returned from Italy and the third patient was the family member of one of those two [3]. The data presented through Table 1 reveals the trend of spread, the rate of death and the rate of recovery of patients which lends out the deepening situation the country is undergoing before justifying the measures taken by the state authorities at various levels of disaster management(pre – disaster measures and during – disaster measures for instances). 3,000 suspected cases have been tested and 218 cases are confirmed positive case among which 54 cases are confirmed dead. If total population is speculated 3,000, the infection fatality rate is only 1.8% though it is not a viable outlook, because the testing facilities have not been provided to every district level hospital. As of 8th of April, five institutions were provided with testing kits. It implies that the lack of mass testing decreases the infection fatality rate. As of 8th April, 2020 with the one month of expansion when the first positive cases were identified on 8th March, 2020, 218 positive cases were identified 20 were confirmed dead and 33 were cured. The rate of case fatality is 9% [9]. The Fig. 2 shows the ratio of positive cases, death and the cure which poses threat as the so high case fatality rate addresses the frailty of health department when the medical college hospitals cannot provide with proper ventilation facility as well as ICU units for the treatment of positive patients. Again, 36 frontline health workers are recorded infected among 218 positive cases which states the positive case rate 16.51% for the service providers and projects the vulnerability of provisions with protective equipment for them by the health department [9]. Such type of prevailing tragic situation poses a negligent effort on the part of the emergency health care providers to provide treatment as everyone has the right to protection. If they are not well equipped, they lose confidence and suffer from moral injury. The Ebola Virus Disease in 2014 took 50,000 of lives in West Africa among whom 495 persons were health workers and the lack of much protective equipment provided to the health care workers expanded case fatality rate to 50% as such type of health emergency situation poses both clinical as well as ethical challenges [10]. The Fig. 3 shows the numerical data of per day identified corona virus cases and the number of deaths that reveals the pyramidal up – surging of case fatality rate.

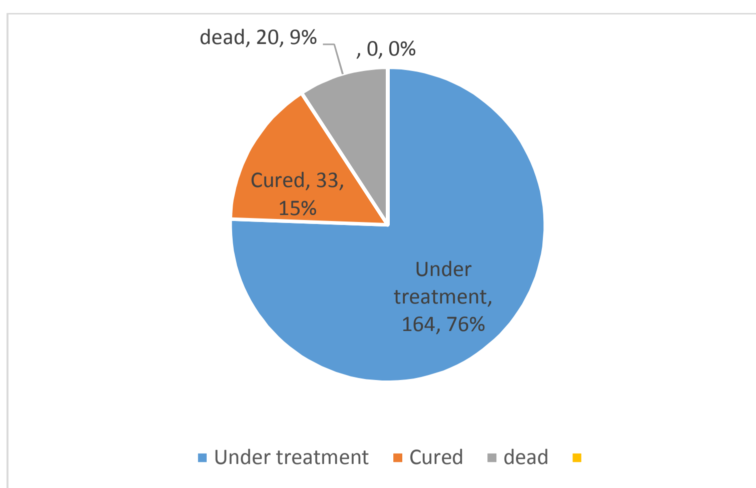

Fig. 2. Outcome of confirmed cases

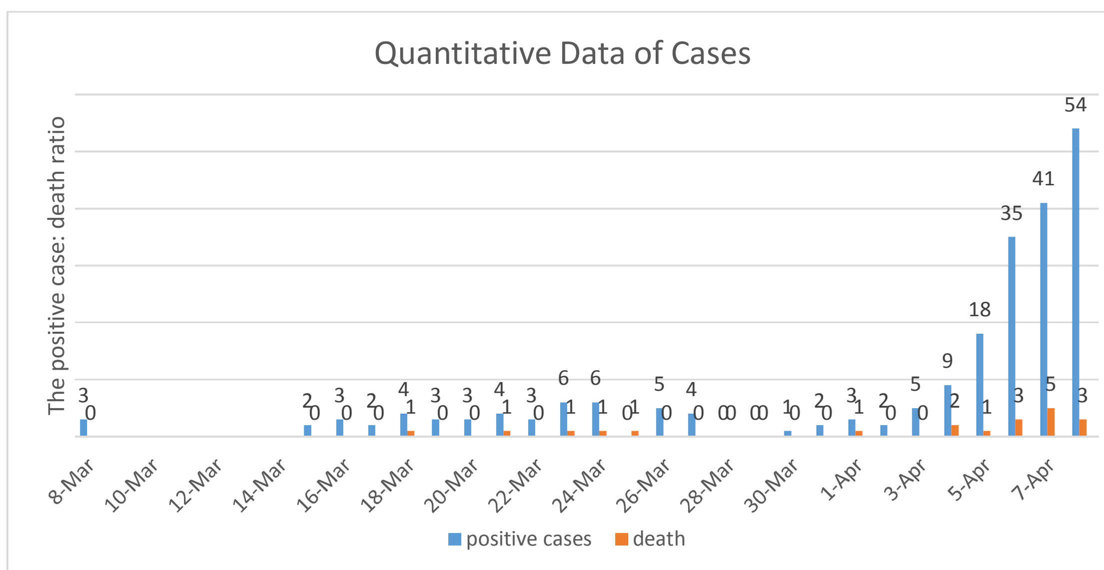

Fig. 3. The Pyramid of month long statistics of Infection spread and death

Table 1. Day wise report of identified positive cases & deaths

Date	Active cases	Death
8.03.20	3	0
15.03.20	2	0
16.03.20	3	0
17.03.20	2	0
18.03.20	4	1
19.03.20	3	0
20.03.20	3	0
21.03.20	4	1
22.03.20	3	0
23.03.20	6	1
24.03.20	6	1
25.03.20	0	1
26.03.20	5	0
27.03.20	4	0
28.03.20	0	0
29.03.20	0	0
30.03.20	1	0
31.03.20	2	0
01.04.20	3	1
02.04.20	2	0
03.04.20	5	0
04.04.20	9	2
05.04.20	18	1
06.04.20	35	3
07.04.20	41	5
08.04.20	54	3
Total	218	20

4. THE PREDICTION ESTABLISHED THROUGH THE DATA

The first corona virus case was confirmed in Italy on 31st January when two Chinese people was visiting Italy and the first person in Europe to die of the novel coronavirus was a retired 78-year-old Italian builder on 21st February. In a month, the death toll shoot up 4,825 — 38.3 percent of the world's total. Brescia is the second in position of Italy after Bergamo in comparison to the numbers to infected cases. Brescia had 4,648 infections and 59 nuns in two Vatican City convents were also found to be infected [11]. The first case in USA was identified on 22nd January, 2020 [12] which was limited to only 35 positive cases as of 22nd February and the updated data on the infection as of 7th April for USA is 26,500 [13].

If a comparison is drawn with the help of the US statistics Bangladesh exceeds USA in case of identified positive cases as USA recorded 35 positive cases as of its first confirmed cases whereas Bangladesh has confirmed 218 positive cases though the positive cases exacerbate in case of Italy if this statistics is compared with Bangladesh. But, Bangladesh ranked second as per the rate of death (9%) next to Italy which covers 38.3% death of the total coronavirus infected disease of the world. The statistics of last four days of Bangladesh coronavirus infection creates deep concern as the number of positive coronavirus cases shoots up from 18 to

54 with comparison to the statistics from 5th April to 8th April. From this perspective, the covid-19 situation is under control for the case of Bangladesh cannot be discerned as USA and Italy experienced less number of positive cases in a month of first positive case identification if the statistics of Bangladesh covid-19 update is considered for granted as of 8th April after the first positive case of coronavirus was confirmed on 8th March.2020.

5. THE DECISION OF TACKLING SWARMING ENTRANCE OF EXPATRIATES

The novel coronavirus reveals transmission dynamics and person to person transmission is occurring [12]. The first person identified positive in USA had the travel history to Wuhan who returned few days ago from Wuhan spending time with his family before identified positive on 22 January [12]. The first identified case for Italy had same travel history [11]. The three persons who were confirmed positive on 8th March recently returned from Italy except one who was the family member of one of the two [3]. This validates the conception of its being a global phenomenon which is travelling as quickly as possible through people from infected areas to uninfected areas. Hence, the first and foremost prerequisite of tackling the free entry of this virus is suspension of international travels through land, sea and air. It is a matter of concern that Bangladesh passport and immigration authority could not suspend all kinds of entry and exit through land ports though Bangladesh experienced its first positive case of novel coronavirus on 8th March and this decision came from the authority of India who sealed all land ports from 14th of March [14]. Again, the Civil Aviation Authority of Bangladesh decided to suspend all of its international flights fifteen days later on 21st March when the country experienced its overplay of pandemic [8] though it was decided upon the urging pressure of civil society.

Over 10 million Bangladeshis live in Bangladesh and nearly 6 lakh Bangladeshis arrived in as of 21st January when IEDCR started screening passengers at the ports entering Bangladesh. 321 Bangladeshis entered from Wuhan 0n 1st February and they were sent to officially managed quarantine for 14 days. Bangladesh authority decided to ban international flights amid the declaration of WHO on the coronavirus as pandemic on 11th March. Two days later of the declaration of global pandemic, 142 Bangladeshis entered Bangladesh who returned from Italy but they were not managed to send to officially programmed quarantine and they were ultimately released after screening and advised to keep home quarantine [14]. This sluggish conditioning of ensuring home quarantine, the lack of monitoring whether these travelers are home quarantined, the delay on travel ban, delay on suspension of international flights logically pose threats to the safety of the country as the authority can face difficulty if contact tracing is required in order to ensure isolation.

6. MEDICAL FACILITY OUTLOOK AT THE EVENT OF COVID-19

It has been previously estimated and evaluated at the demographic justification of the medical, clinical, laboratory, physician and infrastructural efficiency and it is justified insufficient and poor [4]. COVID-19 swept over China 3 months before it visited Bangladesh. But the health department could not take any preventive and protective measures along these span of time. As of 31st March, the Health Directorate reported that there are shortages of Personal Protective Equipment (PPE) though they supplied with 3, 17,500 PPEs to different health institutions at different levels and locations and it reports that local production of PPE has been started.

Around the date of coronavirus case confirmation, a study was conducted on the efficiency of private hospitals. The data confirmed deplorable arrangements for those hospitals if the hospital facilities for a positive patient are taken for granted. It requires a separate isolation unit with ventilation system that will ensure negative pressure room, a separate ICU for quarantine unit with dedicated bathroom, the teamwork of frontline physicians, special training and PPEs for frontline medical personnel which the private hospitals cannot provide [15]. As of 31 March, Directorate of Health provided training to 710 doctors and 43 nurses on infection prevention and control (IPC) including one residential medical officer and another medical officer from the office of civil surgeon from each district and the scope of training extended to 915 doctors and 98 nurses till April 5 [16]. Hopelessly to say, this IPC training did not cover all the doctors and nurses of public hospitals from every district let alone the doctors and nurses form private hospitals. IEDCR was the sole institute equipped with all probable arrangements for testing COVID-19

probable patients. This is one of the reasons why the COVID-19 positive cases were lower during the month of March as all the samples from probable cases had to be referred to IEDCR for confirmation and 2114 samples were tested as of today by IEDCR. By 7 April, 14 laboratories were established for test while 9 laboratories were inside Dhaka and 5 were out of Dhaka. Hence, the positive cases began growing up since 5th of April [16]. Again, the treatment arrangements of the public hospitals have not even been updated as per the treatment guidelines for positive patients. The 200 - bed Kuwait - Bangladesh friendship hospital has been arranged for coronavirus treatment having no uninterrupted oxygen supply and 10 - bed of the Infectious Disease hospital have been made ready for coronavirus cases with only two dedicated toilets for patients [15]. The recent comparative data from World Bank projects aggrieved picture of infrastructural scenario owing to bed facilities for the patients of Bangladesh, USA and China may be suitable to draw here that projects Bangladesh having 8 hospital beds for 10,000 people though USA and China provide 29 and 42 beds for the equal quantity of people. Bangladesh has 432 ICU beds, only 110 are out of Capital city. Private hospitals cover more 737 such units and all these are available to serve 170 million people. Italy has to struggle much with 4.1 doctors per 1,000 people to serve the coronavirus cases whereas Bangladesh is prepared with 0.5 doctors per 1,000 people [17]. This scenario forecasts the fragility of surveillance and the medical level preparedness at the eve of coronavirus mass outbreak.

7. THE REFLEX AGAINST DECIDING FACTOR OF DECLARING STATE OF EMERGENCY

The US government took only almost one week to declare public health emergency on 31st January after it confirmed its first coronavirus positive case on 22nd January and travelling from China was banned that day [18]. On the other hand, the government of Bangladesh could not decide on any sort of emergency for any sector. The government took step by step decision to tackle viral spreading: all sorts of educational institutions were declared close from 17th March, public holiday was declared for all sectors except emergency services from 24th March, and the services of public transports were suspended from 26th March. The national wide lock down was not declared though public was inspired to stay at home and enjoy holiday [15]. The self-destructive decision was also taken amid the deepening of the situation as the garment factory owners ordered all the workers to join workplace on 5th April when the period of first phase nation - wide holiday for 4th April ended though the garment factory owners were criticized from all corners that led them close the garment factories two days later [19].

Now, all these decisions may be estimated as the strategic flaws on the part of the government which may lead to unrecoverable tragedy. But few factors are necessary to discuss prior to reach that assumption. In 2003, Canada quarantined 30,000 people and the probable case spread through 250 but this plan experienced a shocking revelation with the same number of quarantined people having probable 2500 cases. This data reveals mass quarantine may not work every time against tackling infection among people [20]. Rather, mass quarantine in Toronto in order to tackle SARS transmission among persons proved fail and ineffective [21]. It is reported that Bangladeshis earn more than $ 6 a day who are speculated only 15% of the total workers and among all the workers over 90% of them serve in the informal sectors. Most villagers depend on remittances from cities and abroad and Dhaka city accords 10 million of rickshaw pullers. The nation – wide lock down affects them severely which may have a great concern for the state authorities. Almost 75% of US workers have access to paid sick leave, 90% of them health insurance, and one- third of works can be performed online staying at home; but all of these are illusive in Bangladesh [17]. All these come to the fore while deciding on the decision of stand-still for the whole country.

8. CONCLUSIONS AND RECOMMENDATION

Any disaster is planned at three levels to make nation - wide preparedness (pre- disaster, during – disaster and post – disaster management) and the COVID-19 preparedness from the part of the state authority of Bangladesh has been evaluated on the first two levels of disaster management. The authority delays to respond [14,16] to make every preparation providing PPEs and trainings to frontline doctors and increasing hospital facilities and equipping the probable hospitals with COVID-19 test facility equipment as per cluster basis. The swarming entry of the expatriate Bangladeshis could have been tightened and managed with arranging

official quarantine for them to follow as mandatory. The mass quarantine during SARS-2003 community contaminant may prove ineffective but there are lots of studies on COVID-19 that reveals effectiveness of mass quarantine for checking speedy mass transmission [22]. The delaying of declaring national emergency or nation – wide lock down can have socio – politico- economic impact which may pose concern for the state authority; but these can never be higher than the concern of slowing down super spreader as the failure to do this marks brunt on the country in long run [22]. Thus, the hypothesis that state authority could have taken steps enough on pre- disaster and during- disaster management is validated as the paper tries to justify the delaying decisions of taking precautionary actions at both pre-measurement and during-measurement levels of COVID-19 speedy transmission controlling.

The country is passing its fourth stage of COVID-19 transmission. And few recommendations need to be lent out from the perspective of this paper:

(i) The government may declare health emergency and state of emergency for a month;
(ii) The test facilities, isolation units should be increased as per cluster basis dividing the experts to lead a cluster;
(iii) More contract tracing, expatriate Bangladeshi tracing are mandatory to ensure their location, 14 days self-quarantine;
(iv) The government should increase social safety net, dissuade amassing of food in silos, and distribute food to the needy ones through proper monitoring and vigilance at least for a month during national emergency.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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