

Addressing economic and health challenges of COVID-19 in Bangladesh: Preparation and response

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This article mainly explores the economic and health challenges faced by Bangladesh amid COVID-19 and the policies taken by the government of Bangladesh to tackle the economic and health issues. Bangladesh is ranked as one of the worst-hit countries in terms of total corona infections. Affecting the social, economic, and health sectors of the country, COVID-19 pandemic has dampened the overall economic well-being and thus GDP growth along with skyrocketing poverty, inequality, and unemployment nationwide. To tackle these crises, the government has initiated effective policy measures which, in turn, enhanced the recovery rate of COVID-19 positive patients and strengthened the recovery of economic indicators. Therefore, this article suggests other hard-hit COVID-19 affected countries following the recovery model of Bangladesh to encounter the economic and health challenges due to the coronavirus pandemic.

1 | INTRODUCTION

The ongoing pandemic of COVID-19 (coronavirus disease 2019) emerged out of Wuhan City, China in late 2019 and since then it has spread to at least 213 countries, taking the lives of more than 945,092, and affecting more than 30 million in a matter of months (Worldometer, 2020). Since March 8, 2020, when the first case was recorded in Bangladesh, the number of cases and deaths continued rising exponentially making Bangladesh as one of the most affected countries with 342,671 cases and 4,823 deaths as of September 16, 2020 (Worldometer, 2020).

This pandemic situation, being an unprecedented multi-dimensional stressor, has created havoc on health and economy worldwide and hence, presented significant social, economic, and medical challenges consequently (Bodrud-Doza, Shammi, Bahlman, Islam, & Rahman, 2020). Bangladesh is one of the most densely populated countries in the world and therefore, has been hit hard by this contagion as well as facing a massive burden in its economy and healthcare system (Mahmud, 2020). Declining export earnings and tourism revenue due to the imposed border restrictions and prolonged lockdown, whereas millions live hand-to-mouth are considered to be the main contributing factors toward an upcoming economic

shock (Banna, 2020). The already vulnerable Healthcare system of Bangladesh, on the other hand, is being rapidly weary and under strain amidst the frightening rise of COVID cases. This article is an effort to highlight the economic and health challenges faced by the government of Bangladesh due to COVID-19 pandemic and the possible plans and strategies to encounter them.

2 | MATERIALS AND METHODS

This is mainly a descriptive study or qualitative research. Therefore, this article has not collected data from any specific study area. Rather, to explore this objective, it uses secondary sources of data which are collected from different journals, books, newspapers, websites, and so on. No statistical tests or econometric methods are used in this article but data are simply analyzed with MS Excel 2010 and the estimated findings are presented in tabular and graphical forms. In this article, an overall scenario of COVID-19 and the socioeconomic impacts of COVID-19 in Bangladesh are presented firstly and, secondly, the policy measures taken by the government of Bangladesh to combat against COVID-19 and its impacts on health and economy in the country are presented.

3 | RESULTS AND DISCUSSION

3.1 | COVID-19 outbreak in Bangladesh: An overall scenario

A viral outbreak is not an alien concept in Bangladesh given that it has always been struggling with the emerging and re-emerging viruses. For instance, Bangladesh grappled with a record number of Dengue cases in 2019 claiming at least 179 lives nationwide (Alam, 2020). Yet this pandemic caught us off-guard by its lethality, high rate of transmission, and our noticeable lack of preparedness in spite of having a 3-month head start since the outbreak commenced in China (Nahid, 2020; Figure 1).

The index case of SARS-COV-2 was reported from Narayanganj and Madaripur and they included two men who returned from Italy and a female relative. Bangladesh reached 100,000 marks of COVID positive cases in 103 days from the detection of the first case on March 8 while the jump from 100,000 to 200,000 cases came in just 30 days (United News of Bangladesh, July 18, 2020; Figure 2 and Table 1).

About the mortality and morbidity, till date, the fatality rate of COVID-19 is 1.40% which is surprisingly far less than Italy (12.20%) or the United States (3.00%). However, the recovery rate in Bangladesh is around 72.40% which is well behind that of India (78.60%) and Pakistan (95.9%). Even though the rate of positive tests hovers around 20% in general, it is thought to be much higher due to inadequate testing (Coronatracker, 2020.)

Earlier, only some COVID-dedicated hospitals and the public hospitals were providing treatment to the suspected and infected patients but the government later directed all private and public hospitals, clinics to ensure the treatment of both COVID and non-COVID patients at separate parts of the same hospital (The UNB News, March 20, 2020). Nevertheless, many have expressed their concern about how equipped Bangladesh is to deal with the pandemic since there is a dearth of intensive care unit (ICU) beds with facilities of ventilators. Bangladesh reportedly has less than 2000 ventilators for more than a population of 16 million making an average of one ventilator for every 93,273 people. Furthermore, almost all equipped hospitals are situated in the metropolitan areas making it arduous for the rural communities to have access to them (Save the Children, 2020; Figure 3 and Table 2).

Progression of the pandemic also caused shortages of testing kits, personal protective equipment (PPE), pulse oximeters, medical-grade face-masks, or the respirators and even oxygen in the hospital (Sakib, 2020). Since Bangladesh is highly import-dependent regarding essential medical supplies, export restriction caused exertion on the already existing scarcity. In addition to this, panic buying and stockpiling of oxygen cylinders by a section of affluent society caused a dearth of oxygen cylinders, whereas oxygen is one of the mainstays of treating COVID infected patients (Anwar, Nasrullah, & Hosen, 2020; Islam & Islam, 2020).

Aside from these, there is a raised concern on the safety of the healthcare workers as Physician's mortality rate in Bangladesh holds

the highest in the world (4%). So far a total of 105 doctors died of novel coronavirus while rendering service to the nation as frontline warriors (Sakib, 2020). Shortage of PPE, substandard PPE flooding the market, lack of hospital's infection control measures, proper disposal of safety gears, and lack of training among healthcare professionals are said to have contributed to the high death and infection rates (Figure 4 and Table 3).

Scarcity of human resources has always been a prime issue faced by the health sector in Bangladesh. There is a huge disproportion within the ratio between patients, and their doctors and nurses, as it has only 5.26 doctors for every 10,000 populations making the ratio second lowest even in south Asia, according to the most recent health bulletin published yearly by the Ministry of Health and Family Welfare (Alam, 2019). During the period of the pandemic, this uneven ratio has put extra strain on the health workers who were already working long hours under pressure, leaving them exhausted and fatigued, thus being even more prone to the risks of being infected (Ahmed, et al., 2020).

While several measures taken by the Government to curb the spread of the virus have been appreciated globally, Bangladesh still lags far behind in implementing the "test, track and trace" strategy ranking the second lowest country worldwide regarding daily test numbers to population size. Having a population of more than 160 million, Bangladesh ranks only above Mexico with only 5,137 tests done per one million people (Worldometer, 2020).

Furthermore, in late June, the government of Bangladesh decided to set fees for coronavirus testing. At government facilities, the charge is \$2.4 and \$5.9 for the sample collected from home while the private sector charged \$37.75 per test which was never affordable for the unprivileged population. Imposing charges for COVID-19 tests in a public hospital is shown to cause a sharp fall in the number of daily tests being done and is considered as an ill-planned policy by many public health experts (Cousins, 2020; Figure 5).

As a whole, The COVID-19 has been an eye-opener for us and exposed our vulnerability and inefficiencies in the healthcare system of Bangladesh. Good governance, internal supervision, and allocating responsibility among both government and nongovernment organizations having a policy within the Government legal framework may enhance the quality of healthcare delivery of Bangladesh.

3.2 | Socioeconomic impacts of COVID-19

COVID-19 has not only jeopardized people's health but also taken hold of the social, economic, cultural, and all other aspects of the country. Nevertheless, the health and economic sectors have suffered the most among all the sectors. The overall socioeconomic impacts of COVID-19 in Bangladesh are presented here.

The far-reaching consequence of the Coronavirus crisis lies in the fact that it brought radical changes in people's lifestyle ranging from the work-culture to social norms. Staying at home and maintaining social distance has become the new normal. Education has changed dramatically with the distinguishing rise of online learning (Haleem,

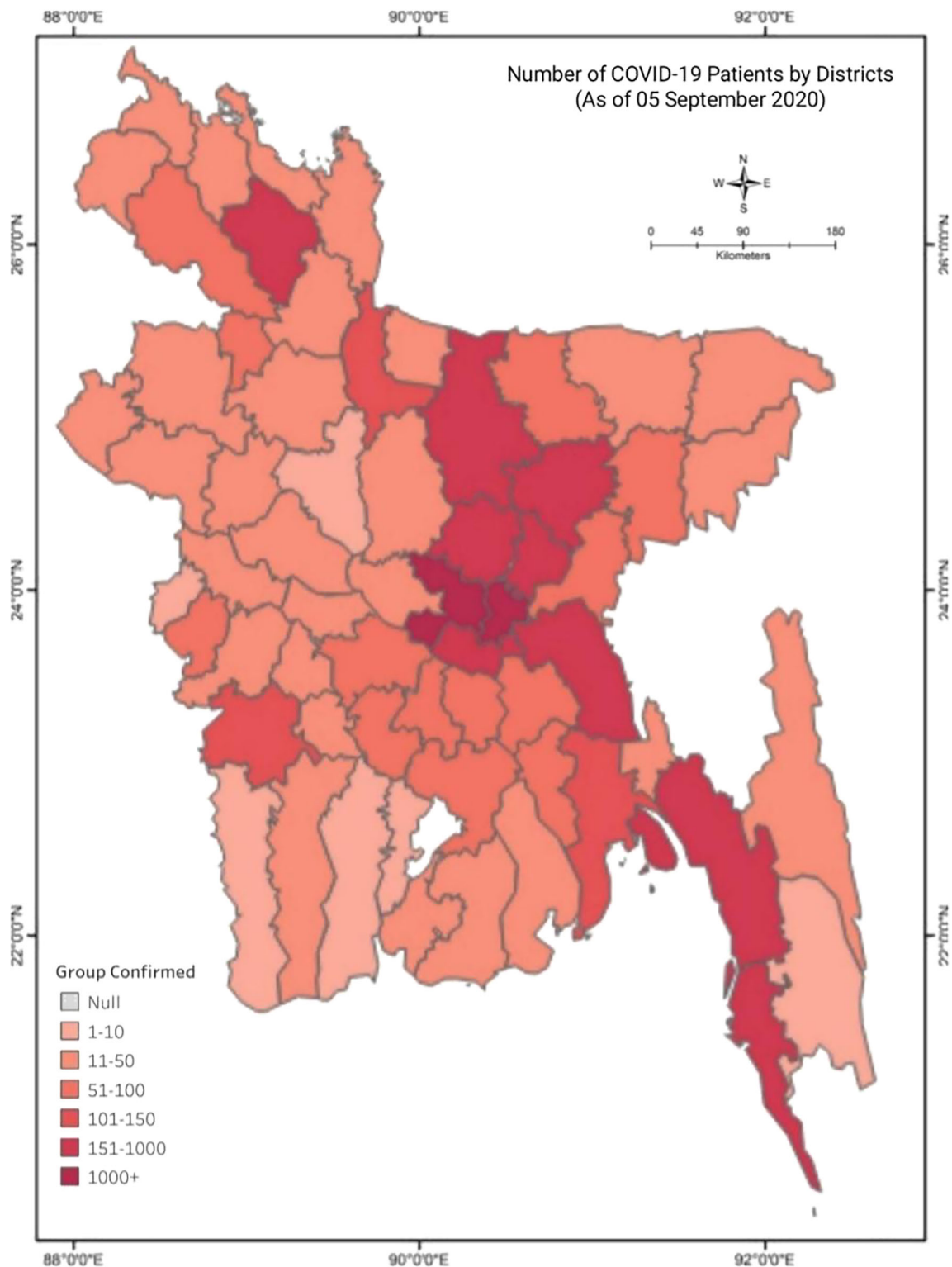


FIGURE 1 Number of CoVID-19 patients by district.

Source: Authors' modification with IEDCR

Javid, & Vaishya, 2020). These drastic alterations in daily lives have created enormous stress and anxiety which is often followed by burn-out and pandemic fatigue. Due to the prolonged lockdown, people suffered from loneliness and depression which eventually degraded their mental health (Bodrud-Doza et al., 2020). In succession to this,

the post-lockdown period witnessed a spike in suicides which was potentially aggravated by social distancing, isolation, fear of losing the near ones to the disease, and multiple financial factors.

The economic sector of the country is believed to be the second most COVID-stricken field after the healthcare system itself since an

unparalleled economic shock is threatening Bangladesh's hard-won progress in the foreseeable future. In a research conducted by South Asian Network on Economic Modeling (SANEM), researchers predicted that Bangladesh's poverty rate may be doubled (from 20.5 to 40.9%) from that prior to the onset of the pandemic (Raihan, 2020). They also mentioned that the poor and susceptible section of the society are becoming even more vulnerable which implies the existing inequality in society is about to increase.

Another research carried out by Bangladesh Rural Advancement Committee (BRAC) revealed that the country's farmers faced a loss worth 565.36 billion takas during the 45 days lockdown period between March and May (Ahmed, 2020). During the pandemic, especially dairy farmers and poultry farmers faced great loss. It was reported that dairy farmers sold milk at Tk. Ten per kilogram and below and somewhere they were even compelled to throw milk on the road while poultry farmers were found to spoil eggs and kill the day-old chicks and bury it in the whole (Begum, Farid, Barua, & Alam, 2020). Due to the lockdown, the price hiked of daily necessary goods cause of breaking the supply-chain mechanism of the country makes the life of jobless people critical (Sen, Antaram, Sen, & Chowdhury, 2020). A lot of imported goods were stuck in the Chittagong seaport and many perishable agricultural products spoiled due to unavailability of transport and shipment amid pandemic which creates financial loss of farmers and makes the living cost of poor people expensive (Mohiuddin, 2020; Rashid, Theobald, & Ozano, 2020).

Due to the pandemic, the industrial sector of the country especially readymade garments sector suffered a huge blow which

accounts for around 80% of the country's total export earnings and at least 4 million workers depend on this sector for their livelihood. This industry faced a reduction in exports of as much as 84% in April 2020 compared with that of the previous year after the pandemic hits in Europe and the United States of America. Due to COVID-19, more

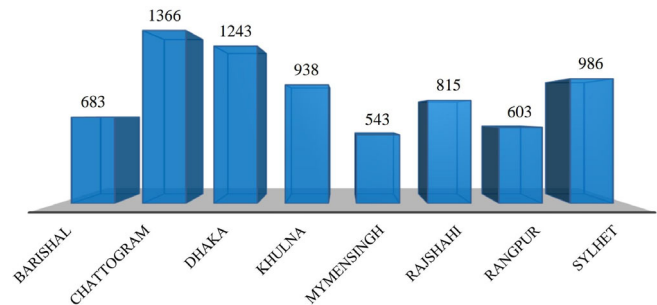


FIGURE 3 Divisional distribution of the No. of isolation beds

TABLE 2 Distribution of beds and admitted patients of Bangladesh

Categories of bed	No. of beds	Admitted patient
ICU bed	371	208
General bed	7,155	2,178

Note: Data retrieved on September 16, 2020. Source: HEOC and Control Room, IEDCR, DHIS2.

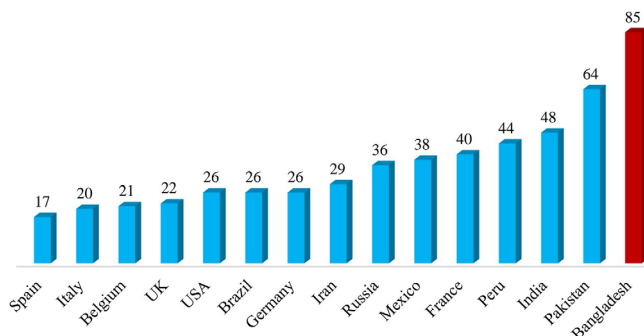


FIGURE 2 Days taken reach first 1,000 deaths. Source: World Health Organization (WHO)

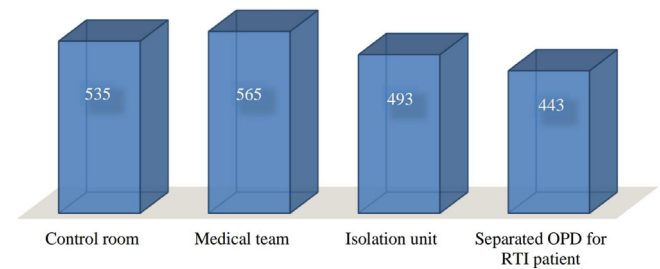


FIGURE 4 Preparedness of hospital for COVID-19 (No. of hospitals out of total hospital, 588). Source: HEOC and Control room, IEDCR, DHIS2

TABLE 1 Country wise incidence of COVID-19

Country	Total tests (Million)	Total positive cases	Total death	Total recovery	Death rate (%)	Recovery rate (%)
China	160.00	85,214	4,634	80,437	5.40	94.40
India	59.43	5,112,431	83,208	4,017,778	1.60	78.60
Pakistan	3.02	303,089	6,393	290,760	2.10	95.90
Bangladesh	1.77	342,671	4,823	247,969	1.40	72.40
USA	93.98	6,803,927	200,853	4,088,443	3.00	60.10
Italy	10.04	291,442	35,645	215,265	12.20	73.90

Note: Data retrieved on September 16, 2020. Source: Worldometer.

than 1,000 factories have been closed and 2.19 million workers have lost their jobs (BGMEA Website, and Ahmed, 2020).

By the same token, the pandemic has also hit the other main source of foreign exchange earnings of the country, remittances. COVID-19 affects 13 million Bangladeshi migrants and 30 million dependents (Karim, Islam, & Talukder, 2020). As a result, the inflow of remittances decreased by 12% in March, and 25% in April compared with that of the previous year (Bangladesh Bank Website). A research by Young Power in Social Action (YPSA) reveals that over more than 0.5 million migrant workers returned home from February to May 2020 (YPSA, 2020). The World Bank also reveals that the inflow of remittances in Bangladesh might fall by around 22% in 2020 due to the pandemic (Ahmed, 2020).

To combat the coronavirus and to tackle the health and economic challenges, the government of Bangladesh took various policies which are presented in the following sections.

3.3 | Government policies for controlling COVID-19

Although there is an ongoing coordinating effort to develop an effective vaccine and several trials to prove efficacy in preventing or curing

COVID-19, there has been no effective therapeutic interventions against this deadly virus yet. Henceforward, maintaining personal hygiene, practicing social distance and isolation of the infected and quarantine of the suspected individuals are the current mainstays to limit the transmission (CDC, 2020). Perceiving the explosive nature of COVID-19 transmission, the governments of many countries have taken containment measures including locking down cities, sealing borders and shutting down all entry ports, strict maintenance of social mobilization, ban on public gatherings, and so on.

With no exception, in order to safeguard people's lives and secure the health care capacity, the government of Bangladesh has also taken the following measures:

1. Implying lockdown measures in the name of general vacation nationwide for over 2 months and afterward to curb the spread of the novel coronavirus which officially ceased on May 30, 2020 (Ahmed & Liton, 2020).
2. Imposing total shutdown policy at selective areas of the country high in COVID-19 positive cases and declaring them as "Red Zones" (Shammi, Doza, Islam, & Rahman, 2020).
3. Suspending all domestic and commercial flights from March 24 and restricting travel via public transports from March 26 (Kamruzzaman & Sakib, 2020).

TABLE 3 Quantity of available logistics

Name of logistics	Balance
Apron/gown	56,624
Gloves-examination	957,633
Gloves-surgical	660,783
Head/face/eye shield	804,016
Masks	3,185,707
PPE kit	1,042,727
Sanitizer	134,116
Shoe protector	48,721
Others	5,586,199

Note: Data retrieved on September 16, 2020. Source: HEOC and Control Room, IEDCR, DHIS2.

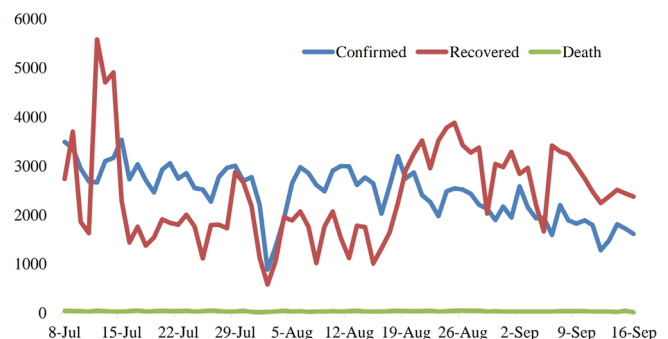


FIGURE 6 Daily incidence of COVID-19 in Bangladesh. Source: Coronatracker

FIGURE 5 Number of daily COVID-19 tests before and implementing testing fees. Note: Red color shows the number of tests after implementing COVID-19 testing fees and blue color shows the number of tests before implementing testing fees. Source: Our world in data



- Announcing to close all the educational institutions on March 16 and extending the closure till October 3 (The Daily Star, August 27, 2020; Figure 6).

The aftermath of taking these policies by the government of Bangladesh is found positive. On the basis of the above chart, it is found that the number of recovered cases are increasing intertemporarily and contrarily, the number of deaths is decreasing over time. Therefore, the COVID-19 recovery rate is increasing which is a good sign for the country. If these above policies initiated by the government of Bangladesh are implemented efficiently, the country may tackle the coronavirus pandemic successfully.

3.4 | NGOs policies for controlling COVID-19

Nongovernmental organizations have also stepped forward providing around Tk.155.87 crore in support for the coronavirus outbreak from March 5 to May 25, 2020. Gonoshasthaya Kendra, a Bangladeshi NGO, developed a rapid test kit which is claimed to be cheap and reliable. The local NGOs working in the grassroots are working to help the government tackle the pandemic's impacts reaching the remote areas, mobilizing the underprivileged into groups, providing them loans, and so on (The Business Standard, June 7, 2020a). For instance, one of the leading volunteer organizations of Bangladesh, Bidyanondo Foundation has played a profound role in providing aids to the crisis-stricken people. Started from providing food-assistance to at least 2,000 people daily, handing over 5,000 PPE in government hospitals and spraying disinfectants in the public transports, this nonprofit organization set up a field hospital in Chittagong equipped with a central oxygen line (Antara, 2020). Different corporate groups, namely Bashundhara, Akij group played their part of contributions by setting up hospitals for coronavirus patients and providing masks, PPE in hospitals and standing by COVID-19 affected families (The Business Standard, May 17, 2020b).

3.5 | Government policies for recovering and strengthening the economy

Amid this pandemic, hardships exacerbated many folds for the low-income groups, for instance, the day laborers as they rendered jobless during the period of lockdown. The government has lent its support by carrying out several measures or programs to provide food and cash aid with the help of respective local administrators. To recover and strengthen the economy, the government of Bangladesh has taken the following policies:

- At the end of April 2020, seven stimulus packages are launched by the government of Bangladesh to tackle the impacts of the pandemic which is Tk.1.00 trillion in amount. Each of agriculture, pre-shipment credit and wages for export-led industries sector are allotted to Tk.5000 crores while large industries and services

sectors, CMSME, facilitation of raw material imports low-income professionals, farmers, and marginal or small businesses are allotted Tk.30000, 20000, 12750 and 3000 crores (The Financial Express, May 14, 2020).

- The government has announced an additional Tk.20 billion stimulus package to help migrant workers, unemployed youths, and rural population during the economic crisis caused by COVID-19 pandemic.
- The government distributed 0.5 million tones rice and 0.1 million tones flour among the pandemic affected people for free along with the open market sale of rice at Tk.10 per kilogram. Besides, the government distributed Tk.7.60 billion for helping those who lost livelihood due to pandemic (Taslim, 2020).
- From announcing the incentive for export-oriented industries to assuring health insurance of Tk.0.5-1.00 million for health workers if infected and Tk.2.5-5.0 million in case of death from COVID-19, Bangladesh is trying to cope with and combat this unequalled battle (KPMG, 2020).
- Besides, the government of Bangladesh, the central bank of the country, Bangladesh Bank, also relaxes the bar of advanced-deposit ratio from 83.50 to 87%, decreases the bank rate (BR) from 5 to 4% (Paul, 2020).

These policies were effective because the country has started to enjoy the benefits of these initiatives. All the mills, factories, industries have been opened and production has been started. Migrants are going back abroad and the inflow of remittances is increasing (\$1,092.96 million in April 2020 and \$2,598.21 million in July 2020) results in the ever highest foreign exchange reserve (\$38 billion) in Bangladesh (Bangladesh Bank Website). If these policies are implemented efficiently till to its validity, Bangladesh may overcome the economic challenges caused by COVID-19 and the economy may come back to the trend.

3.6 | Conclusion and policy recommendation

This article investigates two distinct research questions. First, what economic and health challenges did Bangladesh face amid COVID-19 pandemic? Second, what policies did the government of Bangladesh take to handle these challenges? To find out the solutions to these questions, this article uses secondary data and descriptive analysis. It is found that 1,770,106 people were tested, 342,671 people were found as positive cases and 247,969 cases were recovered, and 4,823 people were killed till September 16, 2020. Thus, till now 89,879 cases are active which shows 1.4% fatality and 72.4% recovery. Besides this, due to the pandemic, the economy of Bangladesh faces different challenges like increase rate of poverty and unemployment, decreases remittances inflow and GDP growth, bans order of ready-made garments, increases suicide, social complexities, and so on. The government of Bangladesh has tried to save the economy from the severe impacts of COVID-19 by taking stimulus package policy for agriculture, industries, and migrants; money transfer to people;

building awareness among mass people through health rules and regulations; smart lockdown by marking different colored zones; surety of food availability; ban international travels, and so on. In addition to this, the government has withdrawn strict lockdown and opened the country partially to recover and strengthen the health sector, agriculture, industries, online education that adjusts with the "new normal life" following health guidelines and social distancing. These policies taken by the government of Bangladesh are profoundly helping in controlling COVID-19 spread and increasing the recovery rate. Countries which are till now in severe conditions in pandemic can follow the steps taken by the government of Bangladesh for the higher recovery rate.

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REFERENCES

- Ahmed, I., & Liton, S. (2020). 21-Day lockdown enough? Cambridge University Study Says: NO! *The Business Standard*. Retrieved from <https://tbsnews.net/coronavirus-chronicle/covid-19-bangladesh/21-day-lockdown-enough-cambridge-university-study-says-no>
- Ahmed, S. A. K. S., Ajisola, M., Azeem, K., Bakibinga, P., Chen, Y. F., Choudhury, N. N., ... Improving Health in Slums Collaborative. (2020). Impact of the societal response to COVID-19 on access to healthcare for non-COVID-19 health issues in slum communities of Bangladesh, Kenya, Nigeria and Pakistan: results of pre-COVID and COVID-19 lockdown stakeholder engagements. *BMJ Global Health*, 5(8), e003042. <https://doi.org/10.1136/bmjgh-2020-003042>
- Ahmed, Z. (2020). Coronavirus: economy down, poverty up in Bangladesh. *Deutsche Welle*. Retrieved from <https://www.dw.com/en/coronavirus-economy-down-poverty-up-in-bangladesh/a-53759686>
- Alam A. (2019). Patient, doctors, nurses ratio: Bangladesh lags far behind its neighbours. *Dhaka Tribune*. Retrieved from <https://www.dhakatribune.com/health/2019/07/21/patient-doctors-nurses-ratio-bangladesh-lags-far-behind-its-neighbours>
- Alam, H. (2020). Rise in dengue cases rings alarm. *The Daily Star*. Retrieved from <https://www.thedailystar.net/frontpage/news/rise-dengue-cases-rings-alarm-1881676>
- Antara, N. F. (2020). Bidyanondo foundation doing its best to help the people. *Dhaka Tribune*. Retrieved from <https://www.dhakatribune.com/bangladesh/2020/05/08/bidyanondo-foundation-doing-its-best-to-help-the-people>
- Anwar S., Nasrullah M. and Hosen, M. J. (2020). *COVID-19 and Bangladesh: Challenges and How to address them*.
- Banna, D. H. (2020). Minimising the economic impact of corona virus in Bangladesh. *The Business Standard*. Retrieved from <https://tbsnews.net/thoughts/minimising-economic-impact-coronavirus-bangladesh-56449>
- Begum, M., Farid, M. S., Barua, S., & Alam, M. J. (2020). COVID-19 and Bangladesh: socio-economic analysis towards the future correspondence. *Preprints*.
- Bodrud-Doza, M., Shammi, M., Bahlman, L., Islam, A. R. M. T., & Rahman, M. M. (2020). Psychosocial and socio-economic crisis in Bangladesh Due to COVID-19 pandemic: A perception-based assessment. *Frontiers in Public Health*, 8(341), 1–17. <https://doi.org/10.3389/fpubh.2020.00341>.
- Coronatracker. (2020). Coronatracker Bangladesh. Retrieved from <https://www.coronatracker.com/country/bangladesh/>
- Cousins, S. (2020). Bangladesh's COVID-19 testing criticised. *The Lancet*, 396(10251), 591. [https://doi.org/10.1016/S0140-6736\(20\)31819-5](https://doi.org/10.1016/S0140-6736(20)31819-5)
- CDC. (2020). Centers for disease control and prevention. Social distancing, Quarantine, and Isolation. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html>
- Haleem, A., Javaid, M., & Vaishya, R. (2020). Effects of COVID-19 pandemic in daily life. *Current Medicine Research and Practice*, 10, 78–79. <https://doi.org/10.1016/j.cmrp.2020.03.011>
- Islam, M. N., & Islam, A. K. M. N. (2020). A systematic review of the digital interventions for fighting COVID-19: The Bangladesh perspective. *IEEE Access*, 8, 114078–114087. <https://doi.org/10.1109/ACCESS.2020.3002445>
- Kamruzzaman, M., & Sakib, S. N. (2020). Bangladesh imposes total lockdown over COVID-19. *Anadolu Agency*. Retrieved from <https://www.aa.com.tr/en/asia-pacific/bangladesh-imposes-total-lockdown-over-covid-19/1778272>
- Karim, M. R., Islam, M. T., & Talukder, B. (2020). COVID-19's impacts on migrant workers from Bangladesh: In search of policy intervention. *World Development*, 136, 105123. <https://doi.org/10.1016/j.worlddev.2020.105123>
- KPMG. (2020). Bangladesh government measures in response to COVID-19. Retrieved from <https://home.kpmg/xx/en/home/insights/2020/04/bangladesh-government-and-institution-measures-in-response-to-covid.html>
- Mohiuddin, A. K. (2020). A pandemic review of Covid-19 situation in Bangladesh. *Journal of Bioscience & Biomedical Engineering*, 1(1), 1–9.
- Mahmud, F. (2020). Coronavirus: In dense Bangladesh, social distancing a tough task. *ALJAZEERA*. Retrieved from <https://www.aljazeera.com/news/2020/03/coronavirus-dense-bangladesh-social-distancing-tough-task-200320103733470.html>
- Nahid, H. A. (2020). Bangladesh: Coronavirus and the media. *European Journalism Observatory*. Retrieved from <https://en.ejo.ch/media-politics/bangladesh-coronavirus-and-the-media>
- Paul, T. C. (2020). COVID-19 and its impact on Bangladesh economy. *The Financial Express*. Retrieved from <https://thefinancialexpress.com.bd/views/opinions/covid-19-and-its-impact-on-bangladesh-economy-1592580397>
- Raihan, D. S. (2020). Covid-19 induced economic crisis in Bangladesh: what needs to be done? *The Business Standard*. Retrieved from <https://tbsnews.net/analysis/covid-19-induced-economic-crisis-bangladesh-what-needs-be-done-80197>
- Rashid, S. F., Theobald, S., & Ozano, K. (2020). Towards a socially just model: Balancing hunger and response to the COVID-19 pandemic in Bangladesh. *BJM Glob Health*, 5, e002715. <https://doi.org/10.1136/bmjgh-2020-002715>
- Sakib S. N. (2020). Bangladesh reports 105 doctors' death in battle against COVID-19. *The Financial Express*. Retrieved from <https://www.google.com/amp/s/thefinancialexpress.com.bd/national/bangladesh-reports-105-doctors-death-in-battleagainst-covid-191597808790%3famp=true>
- Save the Children. (2020). COVID-19: Bangladesh has less than 2000 ventilators serving a population of 165M, warns save the children. *Press Release*. Retrieved from <https://www.savethechildren.net/news/covid-19-bangladesh-has-less-2000-ventilators-serving-population-165m-warns-save-children>
- Sen, S., Antaram, N., Sen, S., & Chowdhury, S. (2020). The apparel workers are in the highest vulnerability due to COVID-19: A study on the Bangladesh Apparel Industry. *Asia Pacific Journal of Multidisciplinary Research*, 8(3), 1–7.
- Shammi, M., Doza, M. B., Islam, A. R. M., & Rahman, M. M. (2020). Strategic assessment of COVID-19 pandemic in Bangladesh: comparative

- lockdown scenario analysis, public perception, and management for sustainability. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-020-00867-y>.
- Taslim, M. A. (2020). Covid-19 pandemic and government response. *The Financial Express*. Retrieved from <https://thefinancialexpress.com.bd/views/views/covid-19-pandemic-and-government-response-1588000220>
- The Business Standard. (2020a). 14.8 Million Get Tk155.87 Crore Covid-19 Support from NGOs: Survey. TBS Report, Retrieved from <https://tbsnews.net/coronavirus-chronicle/covid-19-bangladesh/148-million-get-tk15587-crore-covid-19-support-ngos-survey>
- The Business Standard. (2020b). 2,000-bed coronavirus isolation unit at ICCB to be opened today. *TBS Report*. Retrieved from <https://tbsnews.net/coronavirus-chronicle/covid-19-bangladesh/2000-bed-coronavirus-isolation-unit-iccb-be-opened-today>
- The Daily Star. (2020). *Educational institutions to remain closed till Oct 3*. Star Online Report, Retrieved from <https://www.thedailystar.net/country/news/educational-institutions-remain-closed-till-oct-3-1951813>
- The Financial Express. (2020). Bangladesh's stimulus package tops Tk. 1.00 trillion. Retrieved from <https://thefinancialexpress.com.bd/economy/bangladesh/bangladeshs-stimulus-package-tops-tk-10-trillion-1589443603>
- The UNB News. (2020). All hospital, clinics asked to treat Covid, non-Covid patients. Retrieved from <https://unb.com.bd/category/bangladesh/all-hospitals-clinics-asked-to-treat-covid-non-covid-patients/52156>
- United News of Bangladesh. (2020). Bangladesh hits 2 lakh-mark in corona cases as world's 17th country. UNB Reports. Retrieved from <https://unb.com.bd/category/bangladesh/bangladesh-hits-2-lakh-mark-in-corona-cases-as-worlds-17th-country/54815>
- Worldometers. (2020). Worldometers Bangladesh coronavirus update. Retrieved from <https://www.worldometers.info/coronavirus/country/bangladesh>
- YPSA. (2020). Socio-economic impacts of COVID-19 on returned migrants in Bangladesh. Young Power on Social Action. Retrieved from <http://ypsa.org/2020/06/research-on-socio-economic-impact-of-covid-19-on-returnee-migrants-in-bangladesh/>

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