



How COVID-19 pandemic is affecting achieved food security in Bangladesh: A perspective with required policy interventions

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ABSTRACT

The COVID-19, also known as a coronavirus, is currently wreaking havoc on livelihood, food security, and nutrition security around the world. In developing countries like Bangladesh the situation is far worse. The purpose of this perspective is to highlight the current state and changes of food security in Bangladesh in the context of COVID-19. During the COVID-19 period, the income of a certain set of people fell, which may have contributed to the growth in the poverty rate. It also had an impact on the agro-food systems, supply-value chain, and market levels as a result of the lockdown, movement and social gathering restrictions. The COVID-19 pandemic has an impact on the total food consumption status of the entire country, affecting all segments of the population. To obtain a greater understanding, our analysis identifies current gaps and the pandemic's potential impact from previously published works and reports.

1. Introduction

Bangladesh has achieved great progress in poverty reduction and food security after fifty years of independence. During the previous few decades, Bangladesh has eradicated extreme poverty. Poverty has decreased from 48.9% to 23.2%. Bangladesh has also reached self-sufficiency in food grain production. Over the last few decades, Bangladesh achieved remarkable accomplishments in food grains as well as rice (4th largest producer in the world), vegetable (3rd largest producer in the world), mango (7th largest producer in the world). Bangladesh is also ranked 3rd largest inland fish producing country following India and China. Despite these achievements, there are still disparities in per capita demand and availability of fruits, vegetables, eggs, milk, and other food products that contribute nutrition and growth to the meal. As a result of the food security and malnutrition gap, the situation remains precarious. Bangladesh was ranked 83rd in the world in 2009 in terms of food affordability, availability, quality, and safety, as well as vital natural resources and resilience [1].

Food security is often termed as “access by all people at all times to sufficient food needed for an active and healthy life. It's required elements are the availability of food and the ability to acquire it” [2]. At the national level, food security refers to having an adequate supply of food and making it available to the population in order to meet domestic demands. Household food security (HFS) is regarded as having physical and economic access to sufficient, safe, and nutritious food at all times to meet their dietary needs and food preferences for an active and healthy life [3]. Both the food security at the national level and HFS were dependent on the availability, accessibility, usage, and stability of food production and supply chain management. Household dietary variety is another crucial indicator that shows a household's ability to afford a diverse range of foods for meeting nutritional requirements (HDD). HDD determines a household's economic ability to access a variety of foods during a specified time period, and it is widely used as a predictor of overall food security, establishing a link between socioeconomic class and household food security (HFS) [4]. HDD also interprets dietary patterns and quality of households, which are associated with other

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indicators such as malnutrition in children, adolescents and women [5].

The COVID-19 affects the health and well-being of the whole global population and poses a great threat to global food security and nutrition [6]. Many people have lost their jobs, many have switched to lower-paid jobs and many had no earnings. This economic turbulence reduces physical and economic access to sufficient and nutritious foods, resulting in hunger, malnutrition, a lack of dietary diversity, and malnutrition-related disorders around the world [7]. Food insecurity has increased as a result of unemployment, lower income, and greater poverty.

The COVID-19 epidemic afflicted the population in Bangladesh, as it did in other countries, particularly in slum regions and among individuals living below the poverty line. It affected their economic ability, mobility, and access to nutritious food. COVID-19 also hampered the agricultural production, trade, business and supply chain management system. It has caused food insecurity as well as other damages to economic and social systems [8]. These changes eventually highlight the impact of economic stress on food access during the pandemic.

This perspective piece indicates and analyzes several indicators like food production, consumption, availability, affordability and food security between pre and post-pandemic times. The current investigation cannot provide quantifiable statistics because the coronavirus is still active. It simply identifies existing gaps and the potential impact of the pandemic. We gathered information from previously published materials, media outlets, journals, research reports, and government bodies to acquire a better understanding.

2. COVID-19 impact on existing poverty situation

Bangladesh observed monstrous achievement on poverty reduction indications in the last few decades. Between 2010 and 2016 approximately 8 million people were raised out of poverty and 5.6 million people from extreme poverty [9]. However, till now 24.3% of people are considered poor. About almost 20 million people are considered to be extremely poor who are unable to afford the expenditures of a minimum food consumption basket. The covid-19 pandemic affects the general poverty levels around the world, including Bangladesh, and results in the generation of new poor people. However, little is known about the COVID-19 outbreak's influence on food security, dietary diversity, and related demographic and socioeconomic aspects, particularly in developing countries [10].

According to the BBS labor force survey 2016–17, about 85.1% of the total workforce of this country are involved in the informal sector. According to a recent study, the employment opportunities for the majority of impoverished employees in informal sectors in both rural and urban areas have been considerably curtailed as a result of the imposed lockdowns [11]. About 63% of wage earners became affected by losing their regular work and other income-generating activities. About 65%, 66% and 58% of people are negatively affected from the lower poverty line, the higher poverty line and vulnerable (non-poor) respectively. The income of the poor has declined by more than 70% and about one fourth to one-third of the poor has reduced their costs on food purchases. About 65.35% had no income source and about 74.68% did not receive salary during the pandemic [12]. These circumstances may increase the total number of poor in the country. The overall poverty rate of this country may shift to 40.9% of family income falls by 25% due to the covid-19 pandemic. According to BBS household expenditure and survey 2016 data currently 20.5% population, or approximately 34 million people, were impoverished. However, according to a study conducted by the Dhaka-based South Asian Network on Economic Modeling (SANEM), that figure might rise by 36 million if the poverty line is raised by 1.25% [11].

3. Impact of COVID-19 on food production, supply, and price

COVID-19 has severely impacted Bangladesh's agro-food systems at

the farm, supply-value chain, and market levels due to lockdown, restrictions on movement, social gathering, and the implementation of social distance. The existing agro-food supply chain in the country is extremely complicated, stretching from farm producers to end consumers via food processing and storage sectors and middlemen. Agricultural goods need to pass through several stages of transportation to reach the big cities. Farmers have been suffering from a lack of capital, seed, insecticides, and other necessary items to cultivate their land since March 2020, when the government of Bangladesh imposed limitations on regular activities and movements of individuals to ensure viral containment. Prior to the onset of COVID-19, there was a labor shortage throughout the agro-food sector [13]. Many farmers in Bangladesh rely on seasonal human laborers to harvest their crops, which travel from another section of the country only for a limited time to make money by cutting the crops. But due to the movement restriction imposed by the government caused a lack of availability of those seasonal laborers. As a result the overall production cost of agricultural goods increases. They also have been struggling to sell their products in the markets due to the limited movement of vehicles. A recent study showed that about 70% of the rice producers faced hurdles in obtaining agricultural inputs like seeds, insecticides, fertilizers, and irrigation and extension services. More than 90% of respondents reported a manpower and equipment deficit for rice harvesting, threshing, and planting, and around 30% said they had postponed rice harvesting owing to a labor shortage. About 30% of the farmers also faced problems taking their produced goods to market for selling, whereas 60% of respondents reported an increase in price due to high transportation costs [14]. In many situations, many farmers were unable to sell their harvested commodities, and due to a shortage of laborers, they were forced to leave the crop in the field.

These disruptions had not only happened to rice production but also happened with other food productions as well. One of the biggest meat processing companies of Bangladesh reported about a 20% decrease in mutton and beef sales as well as about 80–90% decline in corporate sales. The total production of meat industry declined by 30%–40% as production expenses climbed [14]. In the instance of fisheries sectors, data show that during the lockdown, fish sales fell from 100% to 56%, buyer availability plunged from 98% to 39%, and production of some local fish varieties fell from 78% to 24%. The amounts of captured fish from freshwater increased but the quantity and value of farmed fish sold dropped by almost half [14].

There were also significant disruptions in the dairy industry as well. Sweet shop farmers are struggling to sell milk as a result of the lockdown and mandatory shutdown. In the instance of vegetable production and marketing, the lockdown hampered farmers' access to the market, resulting in a significant loss for vegetable growers. The approximate loss of the brinjal, cucumber, pointed gourd, yard long beans, and bottle gourd are BDT 4900, BDT 10900, BDT 57400, BDT 52500, and BDT 18500 per acre, respectively, during the COVID-19 [15].

Because of difficulties in agricultural inputs, labor shortages, and transportation, production costs have risen, and staple food prices have also risen by around 25%. The price of Bangladesh's staple food, rice of all varieties, has climbed by 7%–46%, the price of pulses has increased by 24%, and the price of meats such as beef, mutton, and chicken has increased by 4%, 3%, and 56%, respectively [16].

4. COVID-19 impact on food consumption and food security

Despite the fact that rice production and consumption were abundant in Bangladesh, people's dietary diversification was lacking, particularly in rural and slum areas. There were gaps between the recommended per capita intakes and the supply of vegetables, fruits, milk, eggs, etc. The COVID-19 pandemic has made the overall food consumption status more vulnerable. Since the pandemic affects livelihood, food production, markets, trade, and accessibility, dietary diversity, food and nutrition security statuses are eventually at stake. A recent study showed that 15% of rural households and 24% of urban

households that could eat three meals per day before the pandemic reduced their food intake significantly during this period [17]. Around 70% of households reported that they have become unable to provide diversified foods for their children of age range between 6 and 23 months. People living below the poverty level (25%) are the most affected by the issue of limiting their daily food intake, followed by people living above the poverty line (19%) and vulnerable non-poor households. People are implementing various coping mechanisms to manage household food security, such as cutting back on foods, borrowing from relatives and neighbors, and selling their assets and savings [17]. The situation of dietary diversity has become poorer. Most of the people, around 75% are depending on basic staple foods like rice, potatoes, lentils etc. while only a few are being able to intake fruits, vegetables, milk, and meat [18]. Regrettably, while a well-balanced diet is more necessary than ever before, lifestyle modifications during the global epidemic have swung in the reverse direction [19].

A study was conducted in the year 2009 on 188,835 households and that study reported mean dietary diversity score was 10.3 [20]. Another recent study showed that the mean household dietary diversity during the pandemic was 6.22 [21]. In the case of household food security score, a study from 2009 showed mean household food security was 38.6 [22], but that this has dropped to 31.86 during the pandemic [21].

Household dietary diversity and household food security scores have a different impact on rural and urban households. Rural households had lower HDD scores than urban households. The HDD is also associated with monthly income. Households having a monthly income of less than 20,000 BDT had lower HDD scores than the households having a monthly income of more than BDT 20,000. People who lost their employment and jobs, changed occupations, and had their monthly income reduced owing to the pandemic had lower HDD ratings, as expected. Peoples who are educated and have access to online resources have significantly higher HDD scores [21].

The COVID-19 pandemic has an impact on the total food consumption status of the entire country, affecting all segments of the population. A report showed that during the pandemic there was about a 15% decrease in rural populations having three meals in a day compared to the pre-pandemic period. Due to the decrease in monthly income, people are curtailing food expenditures. Another study found that during the pandemic, there was about a 27% decrease in per capita food expenditure in lower poverty regions [17]. Increasing food prices due to the pandemic caused a decrease in dietary diversity. Aside from rising food prices, food distribution and supply chain disruptions have resulted in a lack of availability and affordability for diverse foods, affecting the overall dietary variety scenario [23].

The food affordability of the population of all portions such as lower poverty line, upper poverty line, and vulnerable (non-poor) decreased due to the decreasing monthly income and increasing food prices. That affected the overall household food security. According to a recent survey, 78.1% of respondents had decreasing monthly income, which is directly related to household food insecurity [21].

5. Current policy status and interventions

Four basic elements are crucial to ensure food and nutrition security. These are (i) consumption of food, (ii) quantity, (iii) composition, and (iv) diversity. All of these factors are interconnected and reliant on one another. The entitlement to food of a specific person, group of people, or the entire population is the single most critical factor that can affect all four factors. Without entitlement, access to food security can never be accomplished. All of the current policies, programs taken by the government are focused on this very basic single most factor "entitlement".

Several ministries and departments are working on ensuring food and nutrition security aspects. But the main path guiding policies are National Food Policy 2006, National Women Development Policy 2011, National Nutrition Policy 2015 and NPAN-2, National Strategy for Adolescent Health 2016, National Food and Nutrition Security Policy

2019 (draft), National Agriculture Extension Policy 2020 etc. All the above-mentioned policies have been designed to ensure the entitlement and accessibility of the people to Food and Nutrition. To carry out the policies of various government departments in the implementation of food assistance initiatives and social safety net programs.

One of the programs is the vulnerable group feeding (VGF) program. The government provides rice and sometimes money to a needy group of people twice a year under this program. Another one is the vulnerable group development (VGD) program. Only a female member of a poor family can be a beneficiary of this program, and the family receives food assistance, money-saving support, and cleanliness and nutrition training. Other projects are the employment generation program for the poorest (EGPP) where poor laborers have to complete a certain amount of work to get money. Normally EGPP focuses on two seasons to initiate in each year when there are fewer chances to get works for the daily laborers. The main beneficiaries of the maternity allowances program are the pregnant and lactating mothers where they get food, money, and training supports. The test relief (TR) and food for work are also being implemented to make the vulnerable group of people entitled to food. The gratuitous relief (GR) is one of the best programs taken by the government. Under this program, the beneficiaries can both food and money support in any case of food shortage situation or disaster situation. During the Covid-19 pandemic, situation government had already given many cycles of GR to the vulnerable group of people. One of the advantages of GR is that the beneficiaries are not fixed, thus the responsible persons involved in this program can include any person on the beneficiary list based on the necessity.

The above-mentioned programs are directly related to food assistance. Aside from that, there are numerous additional social safety net programs in which the government provides monetary assistance to a specific group of people, such as widow and divorced allowances, elderly allowances, disabled allowances, and so on. These programs also help the group of people to get more access to food.

According to the policies and the programs supported by the policy clauses, there is little to address current pandemic situations. Only the gratuitous relief (GR) worked well during the pandemic situation. Under this initiative, people who were in dire need of food and money received assistance. The other food assistance programs had previously fixed numbers and a list of beneficiaries that mitigate the sufferings of the enlisted beneficiaries of that specific program during the pandemic. Another difficulty is that most food assistance programs provide staple food aid in the form of assistance. However, in prior discussion, we assumed and demonstrated that individuals in Bangladesh do not suffer from a lack of staple foods, but rather from a lack of dietary diversity and malnutrition due to intake and supply gaps of nutrient-dense foods such as vegetables, fruits, eggs, and milk. There are no food assistance programs that address the issue.

Because of the increase in poverty and destitute caused by pandemics, only gratuitous relief (GF) can provide adequate coverage to the existing poor population. So, it is necessary to think about enlisting more beneficiaries into the other food assistance program like VGD, VGF, EGPP, etc.

Currently, the government and growers are focusing cereal crop farming in the case of food item production. Rice prices strongly influence the prices of other food items in Bangladesh. So, the government always thinks to keep the rice price in a tolerable level. On the other side, the growers feel comfortable in cultivating rice and other cereal crops. In recent days, the responsible ministry has been emphasizing on non-cereal crop cultivation and giving incentives for it. However, this is just the beginning, and the incentives are limited. On the other hand, fisheries and livestock departments should come with more incentives to milk and egg suppliers. Few other interventions have already been taken by the government. The government is also providing incentives to different industrial sectors, businessmen, and entrepreneurs.

The COVID-19 pandemic is disrupting the grain production and supply chain as well as other previously deficit food items. This occurred

as a result of a lack of agricultural inputs, labor, transportation facilities, and movement limitations. Bangladesh's government is making bold decisions, such as refusing to place limitations on goods and labor transport in the country. The ministry of agriculture prioritized agricultural activities as emergency services and circulated instructions not to shut down extension services during the lockdown periods. The cabinet division, which is the highest administrative authority in charge of putting the government's decisions into action, issued instructions to help agricultural seasonal laborers shift from one location to another for crop harvesting. The government also exempted goods-carrying transports from the restrictions. In addition, as an incentive to farmers, the agricultural ministry provides agricultural supplies such as seeds, fertilizers, pesticides, and machinery. That may help to mitigate the disruptions that happened on rice production but, in the case of foods that provide growth and nutrition attributes to the population diet and which had a gap from the pre-pandemic may not get mitigated. As a consequence, the general nutrition status of the population, particularly children, adolescents, and maternal nutrition, will suffer, making it difficult to reach the sustainable development objectives on time.

Furthermore, poverty lines are rising at an alarming rate. The vulnerable are moving into the upper poverty line, the higher poverty line population is moving into the lower poverty line, and the poor are becoming poorer. Food spending, food consumption in terms of number, and HDD and HFS scores are all falling in all clusters. This will eventually have a negative impact on existing national nutritional metrics. Because the majority of Bangladesh's economic activities are concentrated in the main cities, particularly the capital Dhaka, wage earners from all across the country migrates to these big cities for a living. In a highly populated country like Bangladesh, it is extremely difficult to identify the victim. Many safety net programs require people to have their national identity cards, which are issued from their permanent resident addresses, and they are authorized to use the government's safety net services from the address listed on their national identity card. However, because they live at various addresses (in major cities), which are not included on their national identity cards, they are unable to access the government's regular social safety net services.

6. Recommendations

Following interventions should be considered to mitigate the impact of COVID-19 on food and nutrition security.

- i. All other policies should be revised and well synchronized with the National Nutrition Policy and Bangladesh National Plan of Action for Nutrition-2.
- ii. The number of new poor should be considered, and they should get accommodated into the current food assistance program.
- iii. The food assistance programs should offer nutrient-dense foods aside from the staple food.
- iv. A national central database should be developed to ensure a transparent and duplication free beneficiary list which should be synced with a unique national identity number.

7. Conclusion

Bangladesh had achieved sufficiency in grain, fish and meat production. However, there were gaps in intakes of fruits, vegetables, eggs, and milk, which are sources of growth, development, and nutrients in the diet. Food availability became problematic as a result of disruptions in agricultural productivity and agricultural supply chain management, forcing food prices to soar. Food affordability is declining due to rising poverty rates and rising food prices. This is how the COVID-19 pandemic is causing an increase in household food insecurity, low dietary consumption, and malnutrition. The government is continuing social safety net initiatives to minimize the pandemic's impact, but there are numerous opportunities to succeed in the challenging work of reducing

the rising rate of poverty that is occurring in practically every country throughout the world.

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