

RESEARCH ARTICLE

Impacts of COVID-19 induced food insecurity among informal migrants: Insight from Dhaka, Bangladesh

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Food insecurity is one of the rising problems in Bangladesh, and it is severely prevalent among informal migrant workers. In this case, the COVID-19 pandemic has multiplied the food insecurity of informal migrant workers. This study explores and synthesizes the COVID-19 induced food insecurity impact among informal migrants and recommends policy actions to tackle the COVID-19 led food crisis in Bangladesh. A qualitative research approach, including in-depth interviews, four FGDs, and participant observation, has been applied to data collection from different parts of Dhaka city. A thematic approach to interpretive phenomenological analysis is followed in this study. The results show that COVID-19 induced lockdown significantly affects informal migrants' household food security. Most participants report severe complications due to food insecurity like consuming less food, price hiking, no fish or meat, potato, and vegetable. Food insecurity leads to migrant's chronic food shortage, starvation, malnutrition of mother and children, and unhealthy food. As a result, the way of life of informal migrants has been directed to more fragility and vulnerability during the pandemic; even they are not affordable to maintain a minimal level of family affairs and necessity. The findings of this study would be essential guidelines for the governmental and non-governmental organizations and development practitioners to address the food insecurity situations.

KEYWORDS

COVID-19, floating people, food scarcity, food supply chain, pandemic induced hunger

1 | INTRODUCTION

The COVID-19 pandemic has globally assigned several complications, including widespread health issues. It has also provoked the global recession, the world economy's most severe crisis since the end of World War II (M. D. Smith & Wesselbaum, 2020). At the end of December 2019, the first coronavirus cases (COVID-19) were found in Wuhan, China (Tuncer, 2020). After a rapid increase in early 2020, it was declared a public health crisis of international concern at the end of January, and the WHO announced the epidemic on March 11 (Concern Worldwide, 2021). The national government has introduced various travel restrictions to limit the spread of the disease. For example, on April 7, 2020, national governments in 32 countries and

territories in Asia, 43 in Europe, 38 in the Americas and the Caribbean, and 44 in Africa introduced various levels of restrictions (Mottaleb et al., 2020). Even the Amazon rainforest has penetrated deep into the novel Coronavirus, threatening isolated tribes. Coronavirus causes a detrimental effect on society, human health, and morbidity and mortality increased globally (World Health Organization, 2020). The COVID-19 crisis has led to an extreme food crisis worldwide, impacting people's food habits and health. Food deficiency can lead to famine, starvation, and malnutrition since food is the essential basic need. It has been documented that approximately most countries worldwide have somehow suffered from the paucity of foods during this pandemic (Abdul Manap & Ismail, 2019; Colafemmina et al., 2020; Nasereldin et al., 2021; Pakravan-Charvadeh et al., 2021).

Starvation and malnutrition can lead to poor health and affect a person's mental capacity through mental disorders caused by hunger (Inegbedion, 2004; Rakshit & Basistha, 2020). However, several studies and comments have predicted that quarantine from COVID-19 could cause significant damage worldwide (ILO, 2020), leading to a severe food shortage and disrupting the supply chain globally (Food Security Information Network & Global Network Against Crises, 2020). Because of the COVID-19 chaos, tens of millions more people are expected to go hungry this year. The UN World Food Program got similar findings as us in their study. They reported, the epidemic shook up the already broken food system, and millions starved to death (OXFAM, 2020; WFP, 2021). If action is not taken now, hunger associated with the epidemic's social and economic impact at the end of the year could kill up to 12,000 people a day. Dzobo et al. (2020) reported that socio-economic forces were threatened the viability of the lockdown because of the potential impact of the lockdown on the economy. Kalu (2020) described that the public outcry and frustration of the COVID-19 triggered lockdown in Nigeria were compounded by the COVID-19 lockdown's high level of poverty, which means that most people's livelihoods are based on daily earnings. Jribi et al. (2020) and Nechifor et al. (2021) discovered that food supply, restricted movements, and income loss (the socio-economic sense of the COVID-19 lockdown) significantly affect consumer food waste shifts. In Bangladesh's context, we found several studies have been done concerning the COVID-19 led socio-economic crisis. For example, Shammi et al. (2020) reported Coronavirus crisis damage huge losses, including food, possessions, and services such as job losses, economic and monetary losses, food insecurity, starvation, social conflict, and death. Das et al. (2020) investigated that about 90% of households suffered from varying food insecurity levels both in rural and urban areas of Bangladesh. Food security was higher in urban households (42%) than in rural areas (15%). Rahman and Matin (2020) indicated that most low-income and middle-income households were attacked massively due to loss of their lives, jobs, and income.

Migrated people who are involved in informal work are mostly suffered population in Bangladesh. Almost 80% of the casual workers were not engaged in any job in the period of lockdown (Sohel et al., 2021). According to The Guardian (2015) report, every day, 2000 and every year, approximately 47,000 poor people migrate to the capital city known as Dhaka in Bangladesh to escape rural poverty. Most of these migrant people work in the informal economy. For this reason, we have used the term informal migrants to indicate informal migrant workers. They usually work in Dhaka city as a street seller, restaurant, housemaid, rickshaw puller, etc. Generally, informal migrants have no savings, and they earn hand to mouth as like no income, no money (Das, 2020; Jones & Comfort, 2020). As a result, the Coronavirus-led lockdown initiates crucial recessions and unprecedented levels of joblessness. Consequently, these individuals became more vulnerable and probably back to the poverty level close to the 30 years ago reported (Buheji et al., 2020).

However, many studies at the national and international level on the COVID-19 pandemic have been attempted to find out the health risk and its implications and consequences such as economic growth impediment, poverty, mental disorder, household income loss, etc. (Guo

et al., 2020; Janssens et al., 2021; Kansime et al., 2020; Kramer & Kramer, 2020; Mahendra Dev & Sengupta, 2020; Niles et al., 2020; Otache, 2020; Phillipson et al., 2020; Piyapromdee & Spittal, 2020; Prime et al., 2020; Ranta & Mulrooney, 2021). Furthermore, a number of studies also have been done on the COVID-19 induced food insecurity in different regions such as in Europe (Grimaccia & Naccarato, 2020; Reeves, 2020; Tougeron & Hance, 2021), South Asia (Falkendal et al., 2021; Hamadani et al., 2020; Mishra & Rampal, 2020; Rasul, 2021), North America (Gundersen et al., 2021; Niles et al., 2020; Wolfson & Leung, 2020), and Africa (Arndt et al., 2020; Odunitan-Wayas et al., 2021; Zidouemba et al., 2020).

After reviewing several pieces of literature on this particular topic, no research has yet been done on the informal migrants depicted as the objectives of this study. This study intends to fill some of this gap by addressing two research questions like (a) Is the COVID-19 lockdown creating food insecurity? and (b) Are the informal migrants affected by the COVID-19 induced food insecurity? Therefore, this study explores and synthesizes the COVID-19 induced food insecurity impact among informal migrants and recommends policy actions to tackle the COVID-19 led food crisis in Bangladesh.

This study is significant for developing countries like Bangladesh because it played a massive role in uncovering the entire scenario of informal migrants on food security and its vulnerabilities during the COVID-19 pandemic. The findings of this study will be helped for policymakers to address the food issues triggered by the COVID-19 pandemic. Besides, this study will assist decision-makers in understanding the situation in a better way and integrate welfare policy and make more sustainable preparations for the vulnerable group of informal migrants. Since sustainable development is not worthwhile in any country without focusing on specific people. Therefore, it is high time to conduct this study.

2 | MATERIALS AND METHODS

2.1 | Research design

The study used a qualitative phenomenological approach to understand informal workers' food insecurity. To understand phenomena from the participant's point of view, a qualitative research method is appropriate. Because qualitative research focuses on how people interpret and understand their experiences in which they live. Qualitative studies also provide detailed explanations of interest (Forbes, 2015). Phenomenological study studies the human experience through participant descriptions (Nieswiadomy & Bailey, 2018). Therefore, we applied Interpretative Phenomenological Approach (IPA) to understand the participants' lived experiences in their view. IPA aims to explore in detail the processes through which participants make sense of their own experiences (Gough, 2014). It provides a rich source of ideas about examining and comprehending lived experience (Shinebourne, 2011). IPA produces an account of lived experience (Callary et al., 2015) in its terms, rather than through the lens of pre-existing theoretical preconceptions. Furthermore, IPA is a most useful methodology for examining complex, ambiguous,

and emotionally laden (Smith & Osborn, 2015). However, this study adapted Callary et al. (2015)'s four stages of the interpretive phenomenological (IPA) data analysis approach.

and Mohakhali, to collect data; where many migrants people live with enormous difficulties (see figure 1). Besides, these zones are the most crowded, where informal workers are often seen in the street.

2.2 | Features of the study area

This study was conducted in the capital city of Dhaka. Being the capital city of Dhaka, some rural poor people usually migrate towards this city to find works. As a result, many people come to Dhaka city permanently or on temporary bases every day. Considering this study, we were purposively selected four regions, namely Shadarghat, Gulistan, Jatrabari,

2.3 | Sampling and sample size

The ideal size for different types of qualitative studies is 15–20 for homogeneous respondents. Sandelowski (1995) recommended that a sample size of 10 suitable for qualitative studies of homogeneous humans would be sufficient. Crouch and McKenzie (2006) suggested that fewer than 20 respondents could help researchers improve open

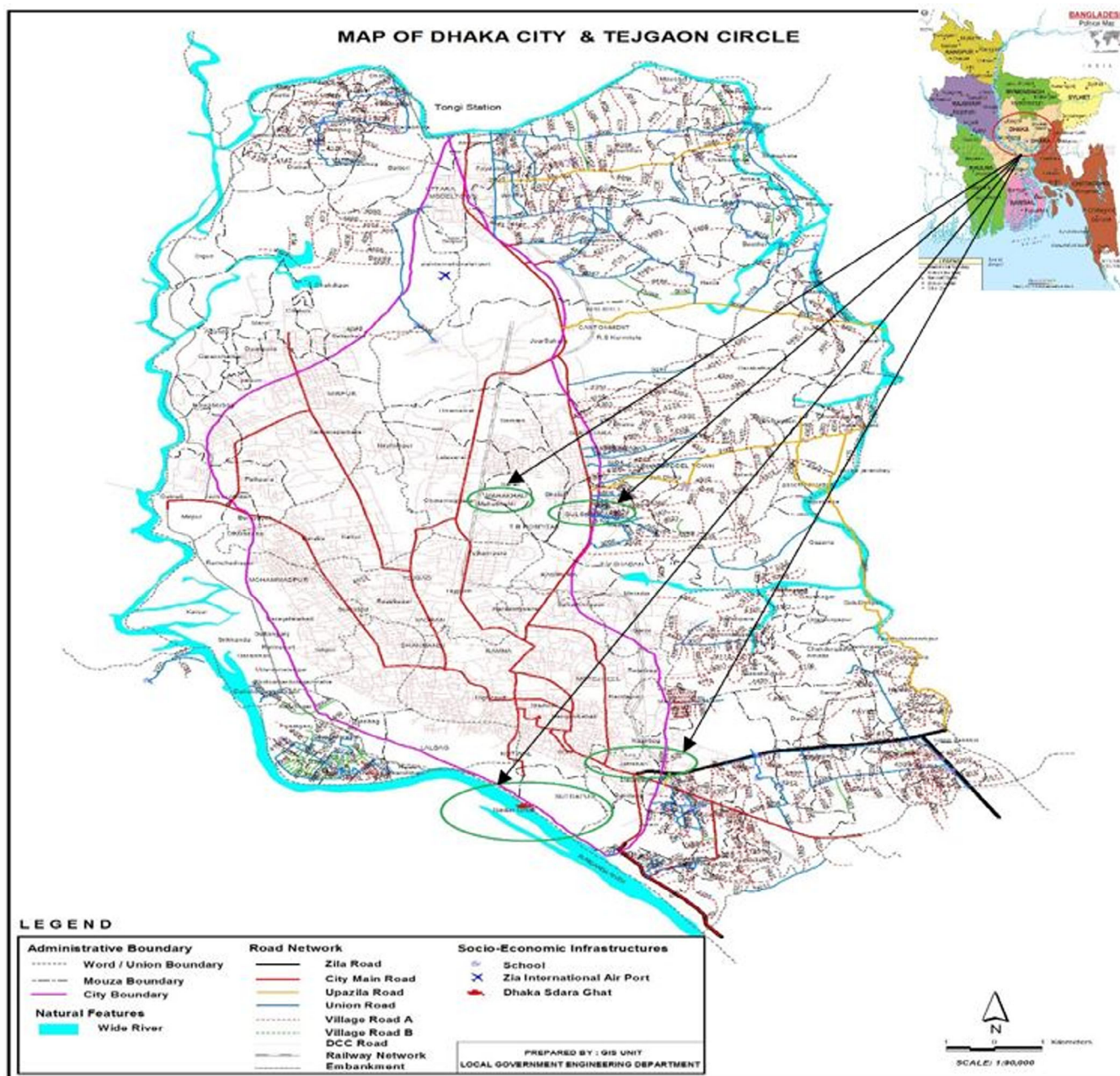


FIGURE 1 Location of the study area map

and caring communication by building and maintaining close relationships. Several researchers offer a variety of guidelines for choosing sample sizes for qualitative studies. For example, Charmaz (2004) stated 25 participants is appropriate for small projects. Besides, Bertaux (1981) revised in Guest et al. (2014) emphasized that 15 respondents suitable for systematic selection of qualitative case studies for each qualitative research. Green and Thorogood (2009) marked that most of the best researchers approach 20 or more respondents. However, we choose the purposive sampling technique in this regard. This study used 21 in-depth interviews and 4 focus groups discussion (FGDs). Each focus group discussion contains 6–15 members. The participant's observation was applied over the 8 months between April 2020 to November 2020.

2.4 | Data collection and instruments

For this study, we set up inclusion and exclusion criteria before collecting data. We selected respondents only those who match the inclusion and exclusion criteria. Two standards were set up that are given below.

1. Respondents might be a migrant, which means they are not born or permanent residents in Dhaka city. To maintain this guideline, we selected those living in Dhaka city for a minimum of 2 years.
2. Respondents who are worked in the informal sector.

We chose the semi-structured interview because it can help better understand practical questions about the research topics (Catterall, 2000). Furthermore, a semi-structured interview investigates the more specific information about the research question (Hillebrand & Berg, 2000). Initially, we took three sample interviews at the field level to further develop the questionnaire. The researchers modified the interview questions to fit the conditions. The interview guidelines were revised after the first interview, which is widely used in the qualitative research method (Hecht et al., 2019). Three potential respondents declined to participate in the study for confidentiality reasons though we ensured high-level secrecy. However, in support of the consent process, the participating respondents were notified that their engagement was voluntary and confidential. Their names would not be revealed in the survey results, and all participants consented orally. The interview was recorded on a mobile device, and the interview took place between 25 and 47 min. In some cases, it was written because some respondents were reluctant in the recording process. The researchers noted respondents' attitudes, expressions, tone, and working environment. The interviews recorded later were carefully transcribed and investigated by other researchers to ensure accurate accuracy.

2.5 | Quality assurance

In qualitative research, QSR International's NVivo 12 was used for the data management and analysis process. NVivo is very useful for

analyzing large volumes of text data because it offers a more in-depth analysis and provides better data analysis (Devitt, 2003; Gibbs, 2004; Kumar & Singh, 2019). For coding, classification, and theme design techniques, NVivo software is best to use techniques (Joffe, 2004; Strauss, 1987). Instead of using paper and pen manually, this software allows researchers to use comfortable and straightforward data management analysis methods. Using NVivo 12 software, the transcripts were thematically coded, classified, and structured to manage a considerable amount of data to accomplish high-quality coding for improving the results' reliability and validity (Patton, 2002; Zamawe, 2015). Carefully planned and compiled the collected data from the various methods immediately after returning from the field. Through the interviews, FGD, Participant observation, the field-level research assistant transcribed and prepared the transcriptions from interviews, FGD, Participant observation and quoted the respondents' unaltered speeches as verbatim. Data were collected and stored in a separate file with a code number classified by their occupation. Then the data was compiled and triangulated by the nature, type, and features of the data/information. We adopted triangulation approaches to ensure data accuracy, validity, and reliability. In this study, the investigator triangulation and data source triangulation approaches were applied as these techniques play a crucial role in reducing bias in data collection, reporting, and analysis (Norman Denzin, 2010). Several researchers have engaged in data collection processes. While the data was being collected, researchers frequently visited the field to investigate without prior discussion to maintain investigator triangulation guidelines. This method of gathering data ensures more extraordinary data validation. Simultaneously, to achieve high study quality, we collected data through three channels, such as in-depth interview, FGD, and participant observation, as a data source triangulation process.

2.6 | Approaches for measuring COVID-19 induced food insecurity

Data analysis followed a hybrid integrate data-driven inductive approach (Boyatzis, 1998) and a deductive approach (Crabtree, 1999a). Four data-driven inductive codes like consumed less food, price hiking, no fish or meat, potato, and vegetable were last hope, and four deductive codes were food shortage, starving, malnutrition, unhealthy food, and food assistance. Furthermore, a thematic approach was used in the interpretive phenomenological (IPA) research, focused on the four stages of data analysis (Callary et al., 2015) to ensure high-quality data accuracy. Transcripts were repeatedly read in step (1) of the study to classify accounts of relevant encounters to the interviewee. Hearing and knowing the participant's stories in their own words and having their experience at the core of their account was the phenomenological position adopted here. In stage (2), the accounts described were re-read, and relevant parts were summarized and codes given reflecting the understanding of the researcher were given. Stage (3) included identifying how the codes found in Stage (2) were grouped into themes and how these themes were interrelated. Comparisons were made through the body of interviews in Stage (4) to establish major common themes accompanied by

captions from the interviews. These themes formed the final performance of this research study.

3 | RESULTS AND DISCUSSION

3.1 | Demographic profile of the respondents

The demographic profile is a key indicator of people's strength and capacity to work. Table 1 indicates that the respondents' age range is between 20 and 60, where 15 respondents are male, and only six are female. About half of the respondents are illiterate, and their maximum education level is up to high school. On the other hand, 18 informal migrants are married, and all of the respondents are living in the urban areas.

3.2 | Food insecurity and COVID-19 induced strict lockdown

Still, over 900 million people worldwide lack adequate safe food (Osundahunsi, 2016). Now, COVID-19 is leading worldwide severe food crisis. There is a food crisis in all country's either rich or poor during initial lockdown. The corona germ strikes without considering the difference between rich and poor. Still, the second invisible blow is coming mainly to the poor (Usman et al., 2020), and the situation of emerging nations is more deplorable (Debata et al., 2020). Bangladesh is no exception; instead belongs to the least developed countries (LDC) and now comparatively safe from Corona's injury, but is dying

in her stomach. Specifically, about 160 million people's food security has been questioned due to the Corona disaster. Coronavirus has also started to hurt the economy of Bangladesh. According to the World Labor Organization (ILO), Asian Development Bank (ADB), Bangladesh Bureau of Statistics (BBS), about 80–90% of the total workforce in Bangladesh is involved in the informal economy. Around 75.2% of the urban population engaged in the informal economy (Statistics, 2015). Approximately 70 percent of Bangladeshi people are employed in the informal sector, and many have suffered from the lockdown. Therefore, it is almost impossible for such a large number of low-income people to meet their daily needs.

In the global context, the health situation and the food situation are becoming increasingly unstable. World Health Organization (WHO) Director-General Tedros Adhanom Ghebresus has identified COVID-19 as a harmful virus 10 times stronger than swine flu. Some parts of the world are very close to famine," said Dominic Curzon, director of emergencies at the World Food Program (WFP) (WFP, 2021). Indeed, such an announcement puts the world's food security in a very precarious position. In case of the food crisis, people will not be infected with coronavirus but will die without food. Currently estimated that 80% of the informal sector workers are not working due to the epidemic (Mahmood, 2020). Since the informal worker (IW) had no income due to lockdown, they suffered widespread food insecurity during and post lockdown periods. To understand the real phenomenon that they experienced, we thematically coded all the data. Data analysis results produce eight types of categories. The identified thematic categories are consuming less food, price hiking, no fish or meat, potato and vegetable last hope, food shortage, starving, unhealthy and nutritious food.

TABLE 1 Distribution of demographic profile of the respondents

Category	Variable	N
Gender	Men	15
	Women	6
Age	20–30	2
	30–40	5
	40–50	9
	50–60	5
Education	Illiterate	12
	Under primary	3
	Primary	5
	High school	1
Marital status	Married	18
	Widow	3
Place of residence	Urban	21

Note: Source, Field survey, April 2020 to November 2020.

3.2.1 | Consuming less food

According to a survey conducted by the Power and Participation Research Center and BRAC Institute of Governance and Development, 40% of the poor and 35% of those who are not vulnerable have already cut their food use to cope with the epidemic. It can easily guess from the data that if the non-poor people reduce their consumption, the condition of poor marginal people especially informal migrants. Das et al. (2020) found about 90% of households suffered from varying food insecurity levels both in rural and urban Bangladesh. Food insecurity was severe in urban households (42%) than in rural areas (15%). Our one female respondent # 8 explained in this regard as follows-

No, I did not eat twice because I had no income. If I could eat in the morning but did not eat at noon. If I could eat at night, but didn't eat in the morning. The children have to be fed. Otherwise, they used to scream and cry". (Interviewee# 8).

Our in-depth Interview and FGD findings indicated that most of the respondent's reduced amount of food during the COVID-19 induced

19 lockdowns. A similar finding showed in two small cities in Bangladesh that the participants consumed less food quantity and quality during the COVID-19 lockdown crisis (Ruszczuk et al., 2020). Respondents directly said that food insecurity happened for jobless conditions. They avoided nutritious foods, especially animal foods such as meat, milk, and fish, due to loss of income. Besides, rumors spread among them that animals spread the virus to a human. Though European Food Safety Authority, (2020) claimed, no evidence of the virus transmitting by food has been identified. Another reason to consume less food that respondents said they did not eat food but feed it to their kids. A female based FGD # 2 explained-

We could not eat food like before in Corona. If there is no income, can anyone take the meal properly? Some days, we ate on a full plate; some days, we ate half. One night I accidentally burnt the rice when I was cooking; we had no money. That night I borrowed bread from the store and ate it. Many times, there was rice in the house without curry.

3.2.2 | Price hiking

Meanwhile, food prices have risen worldwide due to the Coronavirus-led epidemic, and this rising trend has also posed a threat to food insecurity. China's Bureau of Statistics (September 9) said that food prices in the country rose 11.2% last month compared to August last year. The cost of pork has increased the most. The price of pork, the country's most famous animal, has risen by 52.6% from a year ago. Heat and rainfall have also contributed to rising food prices in the country. Compared to July 2020, prices of vegetables rose by 8.4% in August 2020 and eggs by 11.3% (CGTN, 2020), and last Thursday (September 3), the food and agriculture organization of the United Nations said that last month (August 2020) food prices reached their highest since last February. For the first 3 months in a row, food prices have been on an upward trend. In December, FAO (2021) said that world food prices rise for seven consecutive months, mainly dairy and vegetable oil. According to a national daily newspaper report, in Bangladesh, essential commodities such as cooking oil, rice, and flour have risen during the COVID-19 crisis (The Independent, 2020). Another report showed consumers had to bear the brunt of the price hike of essential commodities this calendar year due mainly to the outbreak of novel coronavirus and spells of flooding in the country (WARDAD, 2020). Food prices generally increased during the lockdown due to travel ban, market closure, transportation restriction, etc. The FGD# 1 findings showed,

Yes, I could not buy many things due to the high cost. The prices of goods went up because the supplies of goods were not enough. Sometimes, the sellers intentionally sold the necessary goods at high prices. They (Seller) know that people have a high demand for those goods. The cost of rice, oil, onions, and vegetables

increased. Police did not allow the vehicles to run on the road. That is another reason behind the high price and shortage of food." (FGD, Dhaka City).

Though all the necessary daily goods price was too much, the vegetable was cheap at that time. Many people made used to pass the day by eating vegetables. First of all, they had no money, but the price was high. It was a dilemma. One male respondent #5 said,

We are senior members of the family. We understand the situation, but the kids do not understand. They do not want to eat the same food items regularly. If I had income, I could have bought them something. I could have purchased fish or beef. But I had no income. I was forced to buy vegetables regularly due to the cheap rate in this situation. (Interviewee# 5).

Our observational data indicate that all kinds of transportation were closed due to strict lockdown. So, the necessary goods could not come to the city from the village. On this occasion, unscrupulous traders raise the price of the product. Besides, the price was high due to food shortages. Respondent # 17 mentioned,

The price of everything became higher. There was no transportation. How will vegetables and everything come? The supply was less. That's why the price was higher. 1/2 people could collect the product on the market and buy from them at a higher price. We used dried chili powder instead of green chili as chili became very expensive. (Interviewee# 17).

We observed the lockdown period; stocks such as rice, cooking oil, lentils, onions, milk powder, vegetables, and potatoes have grown significantly in 2020 and hit people's pockets during the COVID-19 outbreak. Besides, farmers were struck during the second and third quarters of this year, which ended in absolute isolation and flooding during the pandemic, resulting in supply chain disruptions and crop losses. According to the Department of Agriculture and Marketing (DAM), vegetable prices rose 60% to 120% last year, putting low-income groups at risk (WARDAD, 2020).

3.2.3 | No meat or fish

Bangladeshi people usually like to keep meat or fish in their food chart, but the poor Bangladeshi people did not eat meat or fish during lockdown due to lack of money. Most of the respondents had no job and income. So, they could not buy meat like beef, hen, goat, poultry, etc. Some respondents said they could not even buy meat during Eid day (a big Muslim Festival like Christmas). A male respondent # 9 mentioned,

I ate one time, then I didn't eat another time. I ate rice with mashed potatoes. How do I live without eating all

day? We don't have money! Where could I get fish and meat? We didn't get any relief during Eid-UI-Azha. During Eid day, I brought cooked poultry meat from the house next door and fed it to my kids. (Interviewee# 9).

The needs of the people of the city are usually met from the rural. But due to the strict nationwide lockdown, no transport could come from the rural to the town. For this reason, the price of meat was higher. Moreover, a massive demand for beef is met from Indian exported cows. But Bangladesh and Indian border was closed due to COVID-19 led lockdown. As a result, the beef price was comparatively higher than the previous year. In this regard, a male respondent #16 said,

The amount of food was not decreased. But we used to eat eggs instead of fish or beef. I did not get any help from any relative or neighbor. Sometimes, we ate dried fish instead of original fish. (Interviewee# 16).

3.2.4 | Vegetables and potato were the last hope

While the price of commodities was much higher, the prices of vegetables and potatoes were lower during the Covid-19 lockdown crisis. The majority of the respondents said they used to eat vegetables and potatoes because of the lower price. An FGD result #3 showed,

Pulses mashed, mashed potatoes, fried potatoes, vegetables were all on my food list. I passed the whole lockdown by these food items. The price of other commodities was much higher. We are poor. How can we buy foods at higher prices?

Vegetables are produced in many regions near Dhaka, so vegetables could quickly come to Dhaka despite lockdown. Therefore, poor marginal urban people could buy at a lower price. A female respondent # 15 explained with tears eyes,

Vegetables and Potato were the last hope for our family. Everything was more expensive except these. Though we didn't like to eat vegetables and potatoes every day, these were the only way to survive. Otherwise, we have to die for hungry. Sometimes we bought rotten vegetables for a lower price. We used to eat rotten vegetables and potatoes like cows and goats. We had the only goal to live. (Interviewee# 15).

3.2.5 | Food shortage

Global food networks, supply chains, and buying practices are already being affected by the COVID-19 pandemic. Stockpiling and rising demand for food goods have placed a burden on global supply chains,

while trade and movement restrictions have had a knock-on impact on food availability. The price increase further complicates the fair access to high-quality, nutritious foods. The food crisis was severe in cities. The village people usually engaged in agriculture, hence the food crisis comparatively lower than urban. Food could not reach the urban Dhaka from the town due to the closure of the transport system. Besides, substantial informal worker engages street mobile daily necessary commodities (vegetables, rice, meat, fish, onion, potato, pulses, etc.) selling profession. But due to lockdown, they did not sell in the street. Our Respondent # 3, 17 said, respectively,

Police didn't allow to open the street grocery shop. If I opened it secretly, the law did fine. We were sitting at home without working for fearing of the police. (Interviewee# 3).

My house meal was over. There was no rice in the home. I went out to buy rice. The whole store was closed. I was wandering around but could not find rice anywhere. Finally, I saw a store was semi opened. I went to buy rice. But the price of rice was so high. But I had nothing to do. My kids and wife were hungry. I forced to buy rice to paid high price. (Interviewee# 17).

However, according to ReliefWeb (2020) the supply of raw materials domestically and imported is limited, and these materials' prices have risen. Processed food production declined on average by 10%–20%. The COVID-19 lockdown and the resulting economic downturn and food crisis have hindered the entire food supply chain. However, informal workers and those living below the poverty line were consistently unable to stay home because of their high daily wage dependence. According to the respondent's opinion, income is the informal worker's principal determiner to ensure food security. Furthermore, respondents mentioned, they have no relatives in Dhaka city. So, there is no one to help them. Respondent #15 indicated

We didn't have rice in our stomachs during the lockdown. The children cried for food. If we don't earn income one day, we can't eat another day. The government did not think of us and imposed lockdown. Only God knows how we lived. (Interviewee# 15).

3.2.6 | Starvation

According to the World Food Program (WFP), the coronavirus is estimated to cause starvation in some 30 million people worldwide. The economic downturn of the world's wealthiest nations affected by Corona is now threatening to provide food aid to about 100 million people under the World Food Program. Prominent Nobel laureate and economist Amartya Sen has pointed out that the cause of famine is low food production and famine if there is no balanced distribution despite adequate food stocks (Moore & Sen, 1982). Therefore, it is

essential to ensure the proper food supply, level distribution, transparency, and affordability of easily purchased products in this crisis.

Some respondents said that they frequently skipped meals to save food to cook next days. Furthermore, respondents indicated that they used to eat half meal. One female respondent #13 mentioned

If we could eat one meal, we would not eat another. we ate rice with pulses, mashed potatoes, dried mashed potatoes. How do we live? Skipping meals was very common during COVID-19 Lockdown. As a result, we have become physically week. (Interviewee# 13).

Some respondents reported that they were starved. Besides, some respondents said they drank water to quench their hunger. OXFAM, 2020, got similar findings as us in their study. They reported, the epidemic shook up the already broken food system, and millions starved to death. If action is not taken now, hunger associated with the epidemic's social and economic impact at the end of the year could kill up to 12,000 people a day (Pressman, 2020). More than 100 million people this year could be vulnerable to hunger as more people are at risk from the COVID-19 pandemic and the associated economic weakness and climate change. Our FGD # 1 showed,

Adults can tolerate the pain of starving, but how can children remain hungry? My children do not want to eat the same food daily.

Most of the informal workers are marginal poorer. They live from hands to mouth. As they have no income during the lockdown, they suffered more. The COVID-19 has made them lower to remarkably more impoverished. According to a World Bank blog written by (Wen et al., 2020), COVID-19 depresses the world, causes death, disease, and economic despair, putting 49 million people in extreme poverty. Our one respondent # 14 said,

During the lockdown, I had no job. So had no income, how I will buy enough and nutritious food for my family and me. I spent many nights without eating. When the government relaxed lockdown, I went to drive a rickshaw. But how can I drive a rickshaw van? I don't have much energy now. But I was running to meet hunger. (Interviewee# 14).

3.2.7 | Malnutrition and unhealthy food

The COVID-19 pandemic leads to extreme malnutrition worldwide, especially in low- and middle-income countries. Many COVID-19 response strategies, including physical distances, school closures, trade restrictions, and fixation, affect the food system and disrupt the production, transportation, and sale of nutritious, fresh, and affordable foods, making millions of families dependent (Fore et al., 2020). UNICEF (2020) report for the first month of the

COVID-19 pandemic indicates a 30% reduction in nutritional food and a 75%–100% reduction in lockdown period. Our one respondent similarly said # 14 said,

I could not eat on a full stomach every day. Most of the day, I had to eat half plate. Even, there was no money to buy vegetarian food, can it fulfill our hunger? (Interviewee# 14).

Mother and Children have been suffered more due to covid-19 Lockdown. Mainly, informal workers suffering was unbearable. UNICEF representative of Bangladesh Malnutrition worsens the impact of the COVID-19 on mothers and children and can lead to the current inter-generational crisis. More steps are needed to keep food services intact and make parents feel safe when sending their children to shelter for screening and treatment (UNB, 2020). Our FGD# 2 result mentioned,

The most difficult time for a mother is when she cannot feed her kids. I could not eat food properly, so there was no milk in my breast. Then my child used to cry. But I was helpless. There is nothing worse than this. One can easily starve, but there is no more sadness on the earth when one cannot feed their kids. It is better to die.

When respondents were able to manage food, it was often nutritionally void, processed foods. A famous quote said by Hippocrates, “let food be thy medicine and medicine be thy food.” The idea that good health encourages a healthy and balanced diet. With so many individuals falling ill with coronavirus (COVID-19), poor diets lead to pre-existing conditions that put them at greater risk. Our study found that respondents usually purchased nutritional deficiencies food, sometimes unhealthy food items, due to limited financial capacity. Respondent # 5 said,

I feel shy to tell you. I had no money during the lockdown. So, I bought rotten vegetables and rice, and even I saw an old man who ate wasted food from the dustbin due to hunger during amid lockdown. (Interviewee# 5).

3.2.8 | Food assistance

Since COVID-19 has entered a period of unparalleled global need, and earlier this year, 168 million people need humanitarian aid (Cheilleachair, 2020). The COVID-19 affects informal workers disproportionately but often receives less institutional support than formal employment (Webb et al., 2020). Our observational data indicated that the government has been active in distributing relief to vulnerable people from the beginning. Most of the respondents said they did not get the government enough support during the lockdown. A female respondent # 15 explained,

The government did not help us because we are not a voter of Dhaka. So, the local political leader didn't our relief. The leaders have given him who will give a vote during the election. We don't have an uncle or relatives who will tell the leaders about us and help me. (Interviewee# 15).

We observed, stealing relief by political leaders was burning issues in Bangladesh during the COVID-19 lockdown crisis. At that time, many daily national newspapers and TV media presented this information of relief theft in reports. On the contrary, several of the interviews and one FGD findings showed some informal migrants got financial help and government relief also.

The government gave me some help, like 5 kg Potato, 10 kg of rice. The government gave me twice like this, once gave me milk, once gave me rice. In this way, I passed my days. (FGD# 4, Dhaka city).

Our findings disclosed that those who were in urban Dhaka city during the lockdown did not get relief, while those who went to the villages did get. One male respondent # 1 said, "Our Union council has given relief. I got rice, lentils, salt, potato, oil, Mask, sanitizer, etc." But based on our observational data, we noticed the government distributed huge relief in Dhaka city. As they are migrants, they have no relatives or social connections in Dhaka city. Besides, informal workers are often excluded from institutional support. Probably, for these reasons, they did not get relief. On the other hand, those who migrated to the village or hometown during lockdown got relief because they were deeply connected with society.

However, one of the beauties of Bangladeshi society is that their kinship is powerful. Family bondage and social ties are also robust. Natural disasters have been dealt with such social bonds in Bangladesh throughout the ages. Most of the respondents (FGD and Interview) disclosed that they received a lot of support from relatives or neighbors. One respondent # 18 described

Relatives and Neighbors cooperated with us very well. They gave rice, pulses, potatoes, oil, semai (Vermicelli), and sugar. I got food items worth 3000 Taka, including about 25 kg of rice. Another Interview respondent added. Although I received less government support, I received a lot of help from my relatives and society. Otherwise, I had to start begging. Many rich people helped us for surviving. (Interviewee# 18).

4 | POLICY IMPLICATIONS AND RECOMMENDATIONS

To do this, we present policy agenda to address countries' food issues. In the pandemic lockdown, the worst affected groups were people in the informal sector, such as day laborer's and petty traders (Compton

et al., 2010). But informal workers usually remain excluded from government facilities, especially in Bangladesh, such as pensions, insurance, banks, credit unions, etc. (Stuart et al., 2018) because they are not state registered workers (Yu, 2020). As a result, COVID-19 damage their normal life hugely. Our analysis showed that they experienced the worst food insecurity due to jobless situations. This food insecurity issue can short and long-time affect their life in many ways, particularly, they may suffer from malnutrition. Subsequently, this malnutrition can have long-term effects on their health. In this situation, the government should provide monthly household food, medicine for needy informal migrants. We also found that many informal small and medium enterprises lost their business and could not run their business due to financial crisis. Thus, the government should ensure the provision of cash money to continue their profession to eradicate unemployment for sustainable development. The COVID-19 crisis has already existed for over more than a year, and still, no one can predict how long coronavirus will last.

Meanwhile, the global food chain has collapsed, and if it continues for more years, the global food crisis will intensify, which will generate famine for some countries (Amare et al., 2021; United Nations, 2020). In this case, developing nations (UN, 2020) like Bangladesh will suffer more. It is essential that if a country goes into famine, no other government will provide immediate food aid (Priyadarshini & Abhilash, 2021). Because travel bans are still in place around the world (Nchanji & Lutomia, 2021). Besides, somehow, most countries face enormous problems, including scarcity of food due to this pandemic.

Moreover, most countries are focusing their food reserved to ensure their citizen's food safety. The Food and Agriculture Organization of the United Nations has warned that the world is heading for a "famine epidemic" and that many famines could be experienced soon if the state does not act immediately (Economic Times, 2020). However, Bangladeshi farmers experienced massive economic loss due to lockdown-induced market closures, trade disruptions, transportation ban, and migratory labor movement restrictions (Mandal et al., 2021). In this scenario, the government should support (Cash, Agricultural equipment, pesticide, seeds, etc., including the best support for them to sell their ripe crops) and provide more subsidies in the country's agricultural works, and boost local food production. This assist should not be limited only to rural agriculture but also urban agriculture, farming, gardening. A safer social safety net should also support the agricultural system for small farmers and food workers. Furthermore, the government should focus on multilateral agreements with food efficacy or exporting nations to import food items during a food crisis immediately.

Finally, the biggest threat to food security may also be social panic from such infectious diseases. Typically, people often tend to store food when disease strikes, which further defoliates the food market and increases food prices (Arouna et al., 2020; X. Yu et al., 2020). Our observational data indicated that in the early period of Covid-19, panic and rumor spread rapidly in Bangladesh. As a result, people stocked more food than their needed, which severely disrupted Bangladesh's food supply chain. In such a situation, the

government should timely circulate the COVID-19 update in detail and ensuring food security information so that it easily can be possible to tackle the inconvenience situation. Furthermore, the state should consider controlling social panic and rumors and broadcast special news and drama on television about the consequences, including building up community ties.

5 | CONCLUDING REMARK

In addition to affecting those traditionally oppressed (informal settlement dwellers), the nine-week COVID-19 lockdown also undermines the invisible fabric of small towns, shopkeepers, and micro-enterprises that may be formal or informal in their legal status. More lessons will be learned from the lockdown as the pandemic unfolds. The COVID-19 led pandemic lockdown severely impacts food security among informal migrants' households. Most households confront enormous problems and challenges to meet up the daily food and its associated elements. For example, they had to consume less food daily, avoid a balanced diet, and rely on backyard vegetables due to the price hiking, food shortage, and availability during the COVID-19 induced lockdown. As a result, the informal migrants suffered a lot, such as starvation, malnutrition, etc. Moreover, they did not get what they needed at the time of the crisis caused by the COVID-19 pandemic at a satisfactory level from the government and other agencies. This study also uncovers the post-lockdown reality of impoverished informal migrants who are often excluded from Bangladesh's social safety net facilities.

Practically, this research's findings have significant implications for policymakers to address countries' overall food insecurity issues caused by the COVID-19. Theoretically, this study contributes to the existing literatures by several ways such as developing some key indicators for measuring food insecurity of informal migrants, using qualitative measures to explore the current COVID-19 caused situations of informal migrants, and adding key observations for the measurement of vulnerability caused by the COVID-19. Furthermore, the study recommends several welfare policies to address the prevalent issues. This research is also not free from limitations. It was intended to capture the experiences of food insecurity of informal migrants in Dhaka city without covering all cities in Bangladesh. The study has been done entirely with qualitative data and a low sample size. A triangulation approach can be taken, including a considerable sample size to study further.

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AUTHOR CONTRIBUTION

This work was carried out in collaboration among all authors. Author Salman Sohel, Babul Hossain, and Nazirul I. Sarker designed the study, performed the analysis, wrote the protocol and wrote the

first draft of the manuscript. Authors Horaira, Abadur Rahman and Khaled Sifullah managed the proofreading and provided valuable advice to improve the study. All authors read and approved the final manuscript.

DATA AVAILABILITY STATEMENT

For maintaining the privacy of the respondents, the surveyed data are not publicly available. Though the interview process was anonymized but the description of demographic character might lead to disclosing the respondents identification.

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