

Food security among the people living in rural Bangladesh: insights from the northern region of the country

Md. Mahbubur Rahman^{1*} and Shamshad Ferdousee^{2*}

¹ Associate Professor, Faculty of Business Studies, International Standard University, Dhaka 1212, Bangladesh

² Assistant Professor of Sociology, State University of Bangladesh, 1312, Bangladesh

* Corresponding authors, E-mail: mahbubur@isu.ac.bd; shewly.khan@gmail.com

Abstract

The main objective of this study is to explore the food security status among people living in rural Bangladesh. This paper draws on data collected during a field study conducted between September 15 and October 30, 2022. The study examines the 'Food Security Approach' developed by the Food and Agricultural Organization. This research investigated the current state of food availability, accessibility, utilization, and food stability among purposively selected informants in the study area. The study utilizes qualitative research tools, specifically in-depth interviews (IDIs), and focus group discussions (FGDs). In total, 40 informants were chosen followed by purposive sampling and five FGDs were administered. It emerged that daily foodstuffs are not sufficiently available in nearby shops or markets to meet people's daily consumption needs. High food prices and transportation issues are meaningful indicators that shape whether food is accessible to consumers. A lack of a wide variety of dietary foods indicates the current state of food stability, while recent inflation and climatic factors such as drought and flash floods lead to food shortages. The research recommends that the government of Bangladesh (GoB) should upgrade social protection programs through Open Market Sales (OMS), and the informal sector to improve both people's consumption and production of food so that it is secured in the study area.

Citation: Rahman MM, Ferdousee S. 2023. Food security among the people living in rural Bangladesh: insights from the northern region of the country. *Circular Agricultural Systems* 3:10 <https://doi.org/10.48130/CAS-2023-0010>

Introduction

Bangladesh is an agriculture-based country and more than half of its population is directly involved in the industry for their livelihoods^[1]. Mannaf & Uddin argued that food security is one of the main priorities for all developing countries, and Bangladesh is not an exception from this^[2]. Nath et al. and Magnani et al. pointed out that the country has achieved some level of self-sufficiency in food production, especially for rice, which is the staple food for many people in the country and it provides about 70% of their daily calories^[3,4]. Therefore, Begum et al. argues that food security seems to be identical to self-sufficiency in rice production^[5]. Yet, despite its advancement and growing self-reliance in food production, Sleet pinpointed that some obstacles intimidate food security in Bangladesh^[6].

Liu et al. showed that the massive increase in population and rapid urbanization has extended the gap between food supply and demand^[7]. Despite achieving self-reliance in the production of daily essentials, Roy et al. argued that many people experience food insecure situations in Bangladesh^[8]. The wider background is that the Asia-Pacific region suffered acute food insecurity of about 10.3% in 2020, which is the highest in southern Asia (19.9%). In the Asia-Pacific region, the country is one of the top seven countries where the occurrence of severe food insecurity is above 30%, according to a recent report published by Food and Agricultural Organisations^[9]. In 2020, about 1.70 million people experienced severe food insecurity; which is about 10% of the total population, less than in 2014, accounting for about 2.70 million. In developing countries, price hiking in daily foodstuffs and volatility of the availability of food has happened in conjunction with rising food insecurity^[10].

The 'Food Security' concept originated in an international forum in the mid 1970s, to address food insecurity at a time of global economic and food crisis^[11]. To illustrate the concept, Food and Agricultural Organizations [FAO] stated that 'food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs for an active and healthy life'^[12]. This definition has three important pillars, such as availability, access, and utilization, which have been a continuous focus in the academic and associated arenas^[13]. Food and Agricultural Organizations (FAO) added a fourth pillar, known as stability in 2006, in order to fully address the concept of food security, which emphasizes the idea of constancy of the three other pillars over time^[14]. In a large body of literature Jamadder argues that food security has various meanings that appear at both the individual and national levels. At the personal level, it means that an individual has access to the food that s/ he needs from anywhere at any time^[15]. At the national level, it refers to the country having an adequate amount of food stock to meet domestic demand sufficiently. The concept of 'food security' in Bangladesh is featured as synonymous with the adequate amount of rice production and keeps the prices stable. People's livelihoods refer to individual resources, finances, and other means through which people can meet their needs such as food, health, and other associated issues^[16].

Studies by Nath et al. and Monirul et al. showed that despite there being no shortage of food grains in Bangladesh, the wholesale and retail prices of staple foods, such as rice and flour have risen drastically in rural areas^[3,17]. Moreover, the prices of almost all daily foodstuffs such as rice, flour, eggs,

edible oils, lentils, powdered milk, etc., have gone up over the last few months. A few studies have been carried out on the relationship between food prices, food affordability, and food insecurity. Woodhill et al. revealed the need for the involvement of policymakers in the process of food production and distribution that aimed to benefit rural people^[18]. Faridi & Wadood showed that various household characteristics seem to be strongly correlated with food security indicators which might help identify vulnerable households^[19]. Abbade reported that physical access to foodstuffs has a moderate association with food utilization, while economic access is strongly linked to people's food utilization^[20]. Mainuddin & Kirby argued that the prospects of food production, in terms of rice and wheat will increase to meet the growing demand of overpopulation, except in the case of external factors, such as economic recession, and climatic hazards^[21]. Wahlqvist et al. pointed out that due to the increase in food inflation, more people fall below the poverty line^[22]. Food security in extremely poor households has become exceedingly challenging because of weak institutional processes, rapid urbanization, and massive population growth in developing countries like Bangladesh^[23]. Abdul & Hanif described that middle-class people have been seriously affected in terms of their incomes, changes in food habits, and changes in accommodation and education^[24].

However, the above studies have not sufficiently examined peoples' views and perceptions, especially for the rural people, concerning their current state of food security given the economic crisis, climatic hazards, and the failure of government policies. Very few studies have been carried out to address the existing food (in) security for the people living in the rural areas of Bangladesh. For this reason, it is crucial to investigate people's livelihoods in terms of rising food prices for the people residing in rural Bangladesh. This study is therefore guided by the following research questions: How do rural people face the current food insecurity considering the four pillars of food security, for instance, food availability, access to food, utilization of foods, and food stability? To answer these, the study pursues the following objectives: (i) To uncover the extent of food availability among rural people living in the northern region of Bangladesh; (ii) To explore what is sufficient food accessibility to dietary foods; (iii) To examine food stability which is central to the ability to obtain food over time; and (iv) To illustrate the responses of informants in their purchase of nutrient food items at times of economic crisis and climatic hazards.

The conceptual framework: the four pillars of food security

Evidence published by Food and Agricultural Organizations (FAO) and Au et al. state that the concept of 'food security is a multi-dimensional aspect having close relationships with the four different pillars: food availability, food accessibility, utilization, and stability'^[25–27]. The present study has adopted the conceptual framework for addressing the extent of food security and understanding peoples' views on food security (Fig. 1).

Food availability

Food security aims at ensuring the continued availability of food to fulfill all people's demands at prices parallel with their income. Thus, food security can be achieved when people have

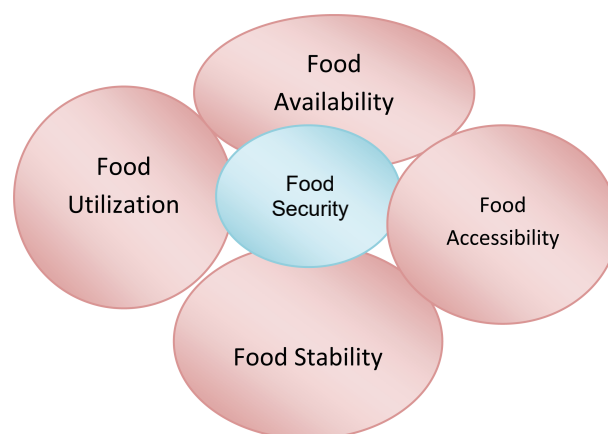


Fig. 1 The four pillars of food security (FS) (Source: FAO, 2003^[12])

equal purchasing capacities to buy consistently good quality food sufficient for maintaining an active and healthy life^[14].

Food accessibility

One of the important aspects of food access is to ensure the affordability and distribution of food, as well as the preferences of individual and household levels^[12]. Food accessibility depends on whether an individual or household has adequate income to buy daily foodstuff at regular prices or has enough land, asset remittances, and other resources to grow its daily essentials.

Food utilization

The third pillar of food security is 'food security' which refers to the nutritional values of the foodstuff and can be impacted by the processing, preparation, and cooking of essential food in individuals and households^[12]. The food ingested must be safe and must contain enough dietary and nutritional value to fulfill both the physical and mental necessities of each individual and household member.

Food stability

One of the main objectives of food stability is to achieve the capacity to obtain daily essential food over time. During the food production time, natural hazards, for instance, flash flooding, and drought may result in crop failure and thus diminish food stability. Therefore, Food and Agricultural Organizations (FAO) argued instability of food production, price volatility, employment instability, instability of import flow, and political turmoil situations may affect the persistence of food security^[12].

Methods, materials, and techniques

Study design

This study focuses on rural peoples' current state of food security and its impact on their livelihoods in the northern part of Bangladesh. Given the multidimensional nature of how food security emerges, this study adopts a range of qualitative methods to answer the question. The qualitative method accumulates and presents data through an in-depth and detailed understanding of people's views and experiences of the current state of food security. The study utilized in-depth interviews (IDI), and focus group discussions (FGDs), for collecting primary data, and reviewed existing relevant research articles, and other

Food security in rural Bangladesh

documents for obtaining secondary data. The study prepared an interview guide and a checklist focusing on the research objectives for carrying out both interviews and FGDs. An interview guide and checklist were pre-tested and translated into the Bangla language so that informants can access them easily. The study has adopted a purposive sampling procedure, as it allows the researcher to choose informants who are selected based on their experience with the required information, and eagerness to reflect on the importance of the event. The study touched upon three aspects of the qualitative approach to explore a wide range of objectives central to this research. The 'what' aspect illustrates the specific context of food security explaining the multi-dimensional approach. The 'why' aspect reveals the multiple reasons behind food insecurity, while the 'how' dimension explains the methodological issues that attempt to answer the questions pertinent to this study.

Sampling procedure: research site and research participants

The study adopted purposive sampling to select both the location and the informants which are pertinent for carrying out the research. The northern region of Bangladesh comprises eight districts which are home to about 20 million people^[28]. Chosen here was the *Bogura* district and it has seven *Upazilas*, each *Upazila* has people having very similar socio-economic features and almost equal standards of living^[29]. The study has selected *Bogura Sadar* *Upazila* which is located in the old *Mahasthan Garh* area of the district. This *Upazila* has 11 unions and each one consists of about seven to ten villages^[29]. The study has selected *Lahiripara* village, a union of the *Sadar* *Upazila* which has been selected for a couple of reasons, such as it has a significant number of lower-middle-class people, with similar levels of socio-economic background, and other features. As well, the place is adjacent to the researcher's living place which helped to find the informants easily. And finally, the informants gave their consent to provide necessary information central to the research objectives. The village, *Lahiripara*, has been chosen for carrying out the research. The village consists of nine wards^[29]. The study selected six informants from Ward No 1, five from No 2, six from No 6, seven from No 7, another six from No 9, seven from No 7, and nine from No 5. The reasons for selecting these people are to understand and document people's daily experiences in purchasing foodstuffs and the existing dynamics of food security and how it shapes peoples' livelihoods in the study area.

Key Informants Information (KIIs) and Focus Group Discussions (FGDs)

In total 40 Key Informant Information (KIIs) were carried out between September 15 and October 30, 2022, to obtain their required detailed information. The key informants were a diverse group of people ranging from farmers, traders, village heads and common people in the study area. The study tested two interview guides to confirm that the informants understood the guidelines and to demonstrate whether any modifications were required. The interview guide was translated into the Bangla language before approaching the informants so that they perceived the questions clearly. With the consent of all interviewees, the interviews were tape-recorded. During in-depth interviews, FGD tools were applied to obtain the information in depth. These tools helped assess the experiences of the interviewees on the various dimensions of food security

and its impact on people in the study area. The study conducted FGDs and individual interviews for aspect mainly few reasons. By reviewing a few research articles/study reports, the present research understood that informants would feel more comfortable while expressing their perceptions, views, and ideas due to their recent experiences with food availability, food access, and stability. Second, people were inspired to share their experiences and feelings on the issues pertinent to research topics that they wanted to express. The study administered four FGDs, and each FGD consisted of eight members. Before carrying out a session, the researcher developed a rapport with the informants. The study, moreover, confirmed that a homogenous group of people took part in conducting the FGDs to keep away from any power issues.

Reflexivity and positionality

At the outset, the researcher took the position of a journalist in a daily newspaper and did not set out to report with political purposes in mind. When the researcher showed his identity card to the informants, this meant he intended to carry out the research strictly for academic purposes. A few people thought the author was an NGO worker and asked many questions about the current price hikes in food and how this was connected to the Russia-Ukraine war. Some people considered the interviewer as an academic which greatly helped to obtain their trust. This put them at ease in sharing their experiences, understanding, and views of the issues. Many people shared a lot of information regarding their current limited access to food but little or no improvement has actually occurred. The researchers gave details about the objectives of the research for them and ensured that the data collected would serve to explore their perceptions of food security to get the required in-depth information. This attitude helped build trust between the researcher and participants, which is crucial for obtaining data. Albeit the information was obtained within a short period, for instance, two months, the researcher was able to collect data in enough detail in the allotted time. The researchers spent 8 h a day collecting information. More importantly, the researchers lived in the village, for the data collection period.

Ethical considerations

The study ensured that the informants felt comfortable with the whole process. The study received oral consent from the informants and conversed with them politely and softly to avoid a sense of confrontation. In addition, the researcher repeated the questions whenever required and a few examples were added for clarification.

Data collection and management

The researchers primarily took into consideration of 'what aspect' of food insecurity was the most important. Later, the study explored the 'why' and 'how' aspects of food insecurity according to the methodological framework. These three aspects along with their dimensions of food security were closely linked. The study adopted the inductive process for data collection and analysis. The collected data were thematically analyzed to understand the main themes and patterns arising from the narratives that emerged from the interviewees. The research demonstrated the comparison of both the similarity and differences of the collected data through thematic analysis. Using a manual approach, the study sorted the collected data in analyzing, structuring, organizing, and coding data. Later, the study segmented the data into subgroups and narrowed

them into specific themes. Afterwards, by utilizing a priori and inductive codes, the study created meaningful analytical units which were directly produced from the examined data.

Thematic analysis

Considering the four dimensions noted earlier in this paper, the study has generated aggregated thematic experiences about food security. The aggregated thematic experiences are then further classified into four categories comprising perspectives on food security. The study runs the NVivo software to generate codes from people's statements and afterwards themes are created. Based on these themes, the following sub-themes reflected the three dimensions in terms of content, context, and process of food security (Table 1).

Food availability and people's livelihoods

Food availability refers to the extent to which food is always physically and culturally obtainable in a desired amount, structured by food production, distribution, and pattern exchange patterns^[12].

Foods are not consistently physically obtainable

The study found that healthy foods are less available or sold at a higher price. People can purchase better food in expected quantities if only markets/grocery stores sell fresh foods and vegetables which are available among the residents. The study revealed that the informants do not get the necessary daily foods as they are not easily obtained from the market or grocery shops. People living in rural areas are struggling to cope with the recent food prices and thus maintain a decent livelihood. It is found that with the prices of daily essentials reaching new heights, living one's life in a village is very difficult. One informant commented that, *'earning TK 12k a month and being an unemployed newlywed only adds to the list of struggles that every new couple faces'*.

It is found that people go to the Union Parishad Center (UPC) area to purchase daily essentials from the open market sales shop (OMS: an open place where rice, flour, edible oil, and lentils are sold at a price of half rates), hearing the information that the daily foodstuffs are sold here at affordable prices. One informant remarked, *'After reaching here, I noticed that nobody knows whether any food vehicle will come today or not. I came here to leave my other tasks at home. Let's see how I can manage the foodstuff'*. The study argued that hundreds of low-income people scramble for the essentials of daily foodstuff from the OMS as the prices continue to soar. It is also found that many

returned home without any food as the shops run out of food fast, *'I had to return home empty-handed yesterday. I cannot afford to miss it again today as the prices of rice and flour are too high in the grocery shops or market'*, stated one informant. The conditions for other people are not different. One informant added, *'I managed one of my friends to be seated here and collect the food. Still, now I could not manage essential foods'*. It is found that one housewife with a baby girl came to the place to get some food relief. She shared that, *'It would be better if I could have some food, it would be great for my newborn child to feed some nutritious food'*. People could not get rice and flour as the truck did not stop at the place where they went. Therefore, they had to leave the place without receiving any food assistance.

Lack of domestic food production, inadequate purchase capacity of daily foodstuffs

The study found that with the prices of fuel and essentials skyrocketing, people struggled to purchase daily foodstuff and only one person had a fixed monthly income. One informant commented, *'I left the OMS place as I have to go out to earn money, otherwise I could not be able to purchase food for tonight! It would be great if I could get some amount of rice from here'*. Likewise, an FGD participant stated, *'Staples such as rice, which used to cost us about TK 60 a kilo, now are being sold for almost TK 100. Being able to get all the items that my wife puts on her grocery list within our budget has been next to impossible for the last three months'*. According to one FGD informant, *'as the production cost has raised dramatically, the staple food, such as rice and wheat have been seriously disrupted which led to less availability of food stock in the market'*.

The prices of fertilizers, such as potassium and urea have rapidly increased, thus local food production has been seriously affected. With many people having little or no income, one informant said: *'I suppose the recent war between Russia and Ukraine led to the shortages of food production in Bangladesh'*. Many informants commented that they did not get the required food in the market, and upon asking the informants, they replied that the production of those particular products, such as edible oil, flour, and sugar has been seriously affected by the recent war between Russia and Ukraine. One informant stated, *'Speaking from experience, life for me was much simpler before the world witnessed the Russia-Ukraine war. I only had to ensure that I had enough to cover my room's rent of around TK 5000, fuel for my bike, and food, which cost me another five grand'*. Likewise one informant noted that, *'in the last one-year, food and non-food expenditure of fixed-income group has*

Table 1. Four pillars.

Theme 1	Food availability and people's livelihood	1.1 Daily foods are not continuously physically obtainable 1.2 Lack of domestic food production, the inadequate purchasing capacity of daily essentials
Theme 2	Food accessibility and livelihoods of rural people	2.1 Less accessibility to obtain daily foodstuffs without problems posed by the time taken to get them 2.2 Physical features of senior citizens, women, and children considering their safety and transportation costs etc 2.3 Limited access to raw vegetables, meat, and other perishable foods
Theme 3	Utilization of food and livelihood of household	3.1 Less capacity to purchase adequate nutritious and safe foodstuffs 3.2 Limited household income to purchase daily necessary foods 3.3 Food quality and health outcomes
Theme 4	Food stability, and people's livelihoods	4.1 Less ability to buy sufficient food on a periodic basis 4.2 Food security is temporal, seasonal, or chronically short 4.3 Instability of food production, volatile price, employment instability, import flow instability, and political unrest situation

Source: Field work, 2022

Food security in rural Bangladesh

Table 2. Two factors affecting food security in terms of 'Four Pillars'

The state of food availability	Daily foodstuffs are not sufficiently available in nearby shops or markets meaning that people cannot adequately purchase and consume them. People do not shop at the closest available grocery shop because they lack enough money or other resources. Many consumers purchase their staple foodstuff to shop at a grocery shop, irrespective of their food security status.
The degree of food accessibility	1. High food prices shape whether consumers will have access to food. 2. Higher food prices lead to people's less access to food, particularly for low-income people or households. 3. Individual or household resources, such as laod, mooey, and other household resources may also contribute to the conditions of food security. 4. Access to transportation play a vital role in getting access to food access. 5. Public transportation may facilitate people's access to food, particularly for those with no transportation, albeit routes would need to be available so that people can reach neighborhoods with supermarkets.
The state of food utilization	People lack dietary quality foodstuffs which is crucial for their meotal aod physical health. Food insecurity is continuously associated with a wide variety of worse health outcomes, and poorer general health.
Food stability	The lack of capacity to buy adequate safe and nutritious food during climatic hazards aod economic crisis Food production and distribution are oot stable, volatile price stability, inadequate import flow stability,

Source: IDIs and FCDs, 2022

increased a lot. But their income did not'. In this situation, many have to cut costs on entertainment, education, and medical treatment. By doing so, their standard of living is threatened. This has resulted in serious intergenerational impacts.

Food accessibility and rural livelihoods

Individual's position in a family or society and poverty has vital roles in determining whether they could gain access to food. In this framework, accessibility focuses on both availability and affordability, shaping a bridge between these two aspects.

The capacity to collect food free from any obstacles posed by transportation time

Physical distance is an important factor to have access to food as some people live further from food sources, suffering from more food insecurity. The study found that while increasing food supply through ramped-up production and import is a priority, it is equally important to bring food prices within reach through greater market interventions. One FGD informant stated that, *'the grocery store probably is 40 minutes away. Not necessary to say that I want to walk 5 or 6 miles or have to go on highway road. I feel scared for my little kids. Hence, I have to walk about 6 to 7 miles to purchase foodstuff, you know'*. It is found that physical distance to obtain food from various sources has long been a traditional measure of food accessibility. One informant commented that, *'the government must create a national relief fund, instead of separate food programs and project-based initiatives, to provide long-term food assistance to low-income groups'*. Islam et al. found that inadequate transportation has been identified as a prevalent barrier for particular social groups, including people with disabilities, socio-economically poor families, and seniors who might not have their own vehicle^[30]. The study found a total of 30 people got together in a place near the Union Parishad. A 75-year old man came here just after the Fazer prayer. He said that *'due to the increase in the daily foodstuff, I came to the place for the first time in my life'*. This one scenario reflects the wider situation of the other people who attended.

The physical characteristics of senior citizens, their safety, and transportation costs

Apart from the physical distance to a grocery shop, another crucial barrier is the lack of physical characteristics, such as, aged, sick, and so on. The study found that aged people living

alone highlight the role that spouses and relatives often play in ensuring access to healthy food for seniors who have functional impairments. It is revealed that aged people in a family or community may have limited or no public transportation options to get access to food. One informant commented, *'I am an aged person and thus haven't the ability to obtain food with cheaper prices from another town'*.

The study pointed out that finding no other alternative, senior people left the place without any food relief. It showed how people – women, elderly, youth, and minors – in some areas of the village have to wait for hours on end before they have any chance to purchase food. However, not all areas with high concentrations of poor people are visited by OMS distributors or there is a long wait in line without a guarantee of success, due to often insufficient supplies. *'You have to be lucky to get to the head of the line and to still get it'*, said one FGD informant. Many turn up before sunrise. Some are sick but say they still have to make the effort because they have no other option. There are also old people and individuals with disabilities. According to the informant, the lines of people have been getting longer in recent months; so many people in need of subsidized food had not been seen before the pandemic, or even after. Although grocery prices fell minimally in recent weeks, the majority of the population is struggling to buy food, as various studies suggest^[9,31].

Many aged people contended that they came here without having their morning meal and said that cooking will not be possible if they don't get rice from there. One informant confirmed that she *'came here in the early morning, however, till now no foodstuff has been given to any needy people'*.

Access to raw vegetables, meat, and other perishable foods

Many have already stopped buying meat and fish due to the current uncontrolled economy, and prices of almost every commodity in the market have gone up by about 20% to 25%^[9]. One informant asserted, *'I used to buy chicken once a week and beef once a month. But due to the current situation, I buy chicken twice a month. I have stopped buying beef. Also, due to the increase in the price of eggs, many have now reduced egg consumption by 50%'*. It can be seen that 95% of daily necessities including the raw market have increased in price by 20 to 30%. It is heard in various professions that most people have reduced their daily necessities to economize as much as they can, and have stopped using some products permanently.

Almost every year food prices are increasing in Bangladesh due to the low level of production, improper market management, and fraudulent business syndicates run by some top traders. One informant argued that *'the way prices for each product have increased; it is getting quite difficult to manage food with the salary he earns each month'*. Buying foodstuff from the bazaar once a day is the norm as is going to bed without having a meal. The hardship conditions reflect the scarcity of food in other parts of the village. One informant argued that *'due to the hike in prices of commodities I can't make both ends meet with that income. So, I have to use up my savings to meet the additional costs'*.

Food utilization and people's livelihoods

Food quality refers to the dietary content of a specific food which is a more generally useful measure than considering the consumption of any specific food.

The ability to purchase enough safe and nutritious food

The study found that the consumption of nutrient foodstuffs, such as meat, fish, pulses, oils, and eggs has seriously decreased, yet these are the major sources of protein and micro-nutrients. One informant stated, *'Sometimes my children asked for more nutritious food, but food ran out too quickly. Because, we are too many. Thus, we have a shortage of foodstuff'*. One household pointed out that, *'the food we are getting is not healthy for us. Foodstuff, like white bread and white rice meets the stomach but they are not good quality food. It's all only calories, no nutrition'*. Another FGD participant added that, *'we are compelled to choose less healthy food options while also suffering from health complications in turn with nothing left for medical emergencies'*.

One informant said, *'The children are getting tired of nutritious foods. They would like to eat fresh fruit and vegetables'*. An FGD participant added, *'I don't like to eat more but it should be nutritious and I feel bad as we can't eat better because we stay out here. I understand that our eating behavior affects our health, but this is us out of control to get sufficient amount of nutritious food'*.

The study showed that people have to stop purchasing protein foodstuff for their children. Every household head curtailed their daily budget to purchase food. The study also revealed that when shopping for food in the nearby shops or markets, they are purchasing foods regardless of their quality or freshness. One informant asked how we would pass our lives without having minimum food. The people are not buying eggs which are necessary for their daily lives despite their children eating four eggs every day. They can no longer afford to purchase them due to the rising prices of essentials. One FGD participant commented: *'People are being forced to spend less for food because they can't cut the spending on rent, utilities, and healthcare'*, he said. He added that people are reducing eating protein from their shopping list and living their lives with malnutrition.

Food stability and people's livelihoods

García-Díez et al. argued that food stability arises when an individual or household has access to food at all times and can ride out economic crises, political turmoil, and natural hazards events such as a flash flooding or a drought season^[32].

Economic crisis, climatic factors, and food stability

Food stability does not necessarily refer to the prices of foods alone; however, it should consider the availability of daily foods and their nutritious status over time. All the informants argued

that the production of *Aman* rice during the last season has drastically fallen due to the recent drought and flash floods in the northern region of the country. Additionally, irrigation for *Boro* rice has been seriously compromised because of the drought. The study revealed that the government has substantially increased the price of fertilizer urea, amid the existing concerns. One informant reflected the overall findings of the study and stated that, *'if the peasants feel demotivated to produce crops, clouds of uncertainty will shroud our food security'*. One FGD interviewee stated that, *'amid the growing concern, a suggestion came up from the government's side for its citizens to consume rice flour instead of wheat flour, which is meaningless. The government instead could advise people to consume conventional food that should have their purchasing capacity'*. Another informant added: *'The government is mandated to make the food supply smooth'*.

The study found that how the current economic condition creates significant impediments for people to purchase less food and prices of almost every commodity in the market have gone up by about 20% to 25%. The study found that the informants have curtailed the use of their daily necessities to live their lives in the current situation and have ceased buying some food products permanently (Table 2). According to one FGD participant, *'I am a diabetic patient who could not eat rice. I wanted to get some flour, however, I could only manage one packet of atta, as the stock has already finished'*.

Discussion

This study has shed light on the current status of food security and its associated factors among the rural people residing in northern Bangladesh. Employing 'food security' as an analytical tool, the study found that people experience various levels of food insecurity. The study explained four multi-dimensional aspects of food security, for instance, food availability, accessibility, utilization, and stability. Food availability is the situation where food is produced for consumption and where individuals or households can find their food without too much effort involved^[5]. We answered three important questions, such as, 'what', 'why', and 'how' in this research. Answering these questions in this particular study enabled us to connect the critical reasoning of conducting research with the outcomes of this present study. In illustrating the 'what' question, we revealed that the production of local foods has been seriously affected by the recent drought and lack of seasonal rain. Ingram, Rahman et al., Clapp and Maziya-Dixon pointed out that an individual or household is food secure if they can sufficiently fulfill, either from food production or through buying capacity, enough food that Ingram argued that they fulfill the nutrient needs of all the family members^[33–36]. The findings of Clapp showed that the relationships among food availability, food choices, and food security are considerably more complex than can be explained by a lack of supply^[35]. Clapp showed that food security, to a greater extent, relies on food availability, albeit this alone is not adequate to meet individual or household food security^[35].

The study, moreover, examined the 'why' question which touched upon a range of recent relevant literature that supported the justification of this study. A report published by the World Food Program (WFP) reflected the findings of the present study and showed that about 68% of people found it

Food security in rural Bangladesh

challenging to manage daily foodstuffs, while 32% cannot afford to buy food based on their daily income. It is found that the high fertilizer prices contribute to rising global food insecurity concerns which is also argued by International Food Policy Research Institute (IFPRI), Dhaka, Bangladesh^[37]. The study argued that the local supply chain was disrupted by the current uncertainties stemming from the Russia-Ukraine war. Food and Agricultural Organizations (FAO) argued that Russia's invasion of Ukraine led to prevent foodstuffs in the developing world and made food more expensive across the globe, worsening the shortages of food, especially in developing countries^[9]. And finally, the 'how' question touched upon the rigorous methodological process to uncover the study's specific objectives. The methodological process facilitated us to obtaining the in-depth insights and thoughts central to the research-specified objectives.

The study showed that people's access to food depends upon their capacity to obtain resources, for instance, land, and money to produce, purchase, or trade for food. Likewise, the work of Sen argued that food security is closely linked to people's food access, rather than simply its availability among the individuals in society^[38]. Scholars like Carson and Boege argued that food accessibility harmonizes and builds upon food availability by making sure that food is present and that an individual can obtain that food^[31]. It is found that a person's purchasing preferences and ability to navigate distances, which essentially means having access to transportation, shift the distance-between-home-and-grocery-store relationship in nuanced ways. Evidence from the Food and Agricultural Organizations (FAO) pointed out that food accessibility denotes people's ability to obtain food free from any obstacles followed by a range of factors such as travel time, geographical characteristics of the area, storage, neighborhood safety, and costs of transportation^[12]. Clapp noted that households' livelihood security is defined as consistently sufficient and sustainable access to resources and income fulfills the basic needs (including sufficient access to daily foodstuffs)^[35].

The study revealed that price hikes have trumped people's monthly salaries following the increase in fuel prices, pushing up commodity prices, transport costs, medical expenses, and the cost of education. Food and Agricultural Organizations (FAO) revealed that rice is being sold at high prices, while wheat, the second most consumed cereal in the country - sold for a record price in the middle of 2022 amid slumping imports^[9]. Hussain et al. argued that price hikes and market instability have worsened the situation for rural households and affected their access to food. Hundreds of thousands of people in Bangladesh are experiencing severe inflation but there have been no rises in salaries^[39]. Jamadder highlighted that due to the unavailability of local food, and high prices of daily foodstuff, the degree of food security in rural Bangladesh is vulnerable^[15]. The idea of domestic food production is vital for a nation's security. It further denotes buying adequate safe and nutritious food given the demand on individual or household income. Magnani et al. documented that rural people have less access to cereals and other basic food items^[4].

The study found that people's capacity to purchase and eat foods diminishes when circumstances worsen. Nutritious food and dietary quality are the most often recognized as an outcome of food insecurity, not a driver of it^[12]. Clapp showed that the per capita consumption of staple food starts declining

when people cannot afford to have balanced nutrition and diversified food^[35]. A recent study conducted by Islam et al. revealed that a lack of nutritious food leads to mental and physical illness among people in rural Bangladesh^[30]. Begum et al. argued that based on these kinds of results, Bangladesh is currently experiencing food insecurity in the sense of energy unavailable to people in the form of protein and fat^[5]. Likewise, Monirul et al. showed that rural people and households lack access to dietary and nutritious food, safe drinking water, etc., which results in increased vulnerability to food insecurity^[17]. Roy et al. pointed out that the country has improved food production but nutritious food intake among the people is still far below the required standard^[8].

The study revealed that a substantial number of people are severely food insecure and thus malnourished. People are becoming stunted by eating less nutritious food. The study pinpointed that many people purchase trash food, as the food is cheaper than fresh options, and they understand that getting fresh vegetables is awfully expensive. The outcomes are consistent with the findings of Food and Agricultural Organizations (FAO) which stated that meeting all four facets of food security is essential for the development of future generations and is necessary for the goals of food security to be realized^[9]. Likewise, Wahlqvist et al. and Rahman et al. showed that the developing world and the global south are home to the most susceptible populations to food insecurity^[22,34].

The study showed that people with physical ailments cannot get access to daily essentials. Disability was continuously connected with a higher risk of individual or household food insecurity over different populations and places^[40]. The findings of Haque et al. supported the results of the present study, revealing that the physically weak and socioeconomically disadvantaged population in northeastern rural Bangladesh has poor access to basic food^[41]. Wahlqvist et al. pointed out that individuals with functional impairments and/or disabilities do not get equal access to daily essentials compared to healthy persons^[22]. The study argued that because of increasing prices of daily foodstuffs, most of the informants have stopped or mitigated the purchase and consumption of main dietary or nutrient food items such as fish, meat, milk, and fruit. Here too, the reduction in quantity and quality of food consumption has been more extreme in the rural areas. Several households had also skipped at least one meal in the last month due to a lack of money.

Conclusions, limitations, and areas for future research

The study explored the level of food security among the people in the study area in terms of the four pillars - availability, accessibility, utilization, and stability - that are important to the informants in the study locale. The findings revealed that many people do not have the means to purchase necessary food on a daily basis. Domestic food production has been seriously hampered as the costs of food production, such as oil prices, seeds, and other production costs soared. The findings convincingly reflected on the status of the other three pillars of the food security situation in rural Bangladesh. The access to food by informants demonstrates that people lacked substantially enough purchasing capacity, given that prices of each staple food have seriously increased. Moreover, the physical distance

required to get daily foodstuffs has prevented people from purchasing food. Thus, people have to go to bed with only a minimum amount of food which leads to potential long-term hunger. The study revealed daily per capita consumption of calories, and nutrient foods do not meet the standard level that informants require. They do not receive adequate food and the necessary daily calories. Regarding food stability, it is revealed that climate change-related hazards, such as drought and flash floods have seriously hampered this year's production of *Aman* rice in the northern region of Bangladesh. Added to this, the high prices of urea and oil have disrupted the production of staple foods. These factors have accelerated less stable food production in the region. Thus, food security has been hugely affected.

The research, however, has a few limitations which mostly rely on employing the qualitative methods. The study followed thoroughly the qualitative method in the entire process of data collection, and analysis. In line with the methods, we collected qualitative data and presented them using thematic techniques. First, the method, by its nature, did not allow us to provide comprehensive insights into the study's aims and objectives. Second, the number of informants might be another drawback as 40 informants might not be enough to provide vivid pictures and in-depth information central to the research objectives. Apart from these, our positionality affects to collect and present data on an impartial basis as the researchers were born and brought up in the same study place. In order to overcome the limitations, we kept ourselves in a neutral stance so that informants did not feel any hesitations to provide the required data. Last but not least, applying a quantitative approach could have helped us to obtain and analyze data in a more comprehensive manner which could facilitate in presenting data in a more generalized way.

The current research plays a vital role in developing a real picture of the recent price hikes and associated adverse effects on people living in the study area. The outcomes of the research will help policymakers to devise practical and effective strategies for mitigating the dangers posed by rising prices of foodstuffs. Future research should focus on revealing the various causes of the current food insecurity in the country. In so doing, future studies should be designed to help relevant ministries of the GoB to take necessary steps to mitigate the current barriers to food security. The concerted efforts would greatly benefit the masses as well as the proposed strategies to help them escape from the precarious situation of food insecurity in the country. Thus, the basic needs of its inhabitants will be sufficiently managed which aims at leading a sustainable livelihood.

Finally, this research paper concludes that examining food security as experienced by informants is multi-dimensional. Food security has a variety of meanings relevant to a specific context or dimension covering the 'what' aspect. The 'why' aspect explains the various reasons illustrated above for food insecurity, while the 'how' dimension covers the methodological framework that was employed to answer the question devised for this research.

The research suggests urgent evidence-based recommendations to be carried out which are as follows:

(i) The Government of Bangladesh (GoB) should find out for a new market from which essential daily foods, such as rice and wheat can be imported at fair prices.

(ii) The GoB needs to take action to protect the socio-economically poor by meeting their consumption and production requirements. Social protection strategies need to be put in place to align with the country's current challenges but also what it seeks to achieve.

(iii) It is evident that the global market may remain unstable for quite some time because of the current Russia-Ukraine war. Therefore, the government should take steps to ensure that the country's food grain supplies remain stable for the near future.

(iv) The government must prioritize local production of foodstuffs provide the required policies, and then ensure that these are actually enforced.

(v) There is an urgent need to bring down prices so that the extremely poor have some means to pay them and to expand and improve OMS services so that the most vulnerable people in society are not left behind.

Conflict of interest

The authors declare that they have no conflict of interest.

Dates

Received 17 June 2023; Accepted 31 August 2023; Published online 24 November 2023

References

- Jolliffe D, Sharif I, Giménez L, Ahmed F. 2013. Bangladesh - Poverty assessment: assessing a decade of progress in reducing poverty, 2000-2010. www.worldbank.org.bd/bds
- Mannaf M, Uddin MT. 2012. Socioeconomic factors influencing food security status of maize growing households in selected areas of Bogra district. *Bangladesh Journal of Agricultural Economics* 35:177-87
- Nath NC, et al. 2015. Food security of Bangladesh: Status, challenges and strategic policy options. *Bangladesh Journal of Political Economy* 31(2):189-250
- Magnani R, Oot L, Sethuraman K, Kabir G, Rahman S. 2015. *USAID office of food for peace food security country framework for Bangladesh (FY 2015-2019)*. Washington, DC: Food Household International. 360 pp. www.fantaproject.org/sites/default/files/resources/FSCF-Bangladesh-Feb2015.pdf
- Begum MEA, Hossain MI, D'Haese L. 2014. Food security in Bangladesh: present status and trend. *Progressive Agriculture* 24:263-71
- Sleet P. 2020. *The state of Indonesian food security and nutrition*. Report. Nedlands, Australia. <https://apo.org.au/node/276271>
- Liu X, Xu Y, Engel BA, Sun S, Zhao X, et al. 2021. The impact of urbanization and aging on food security in developing countries: the view from Northwest China. *Journal of Cleaner Production* 292:126067
- Roy D, Sarker Dev D, Sheheli S. 2019. Food security in Bangladesh: insight from available literature. *Journal of Nutrition and Food Security* 4(1):66-75
- Food and Agricultural Organizations (FAO). 2022. *The state of food security and nutrition in the world. Transforming food systems for affordable health diets*. Food and Agriculture Organization of the United Nations. www.fao.org/policy-support/tools-and-publications/resourcesdetails/en/c/1298217/
- World Food Program (WFP). 2022. *The Food Security Atlas of Bangladesh*. Bangladesh Planning Commission, Bangladesh Bureau of Statistics and the United Nations World Food Programme.

Food security in rural Bangladesh

11. Food and Agricultural Organizations (FAO). 1996. *Rome declaration on world food security and world food summit plan of action*. FAO Declaration Paper. www.fao.org/docrep/003/w3613e/w3613e00.htm
12. Bindraban PS, Aalbers HL, Moll HAJ, Brouwer ID, van Dorp M, et al. 2003. *Focus on food insecurity and vulnerability: a review on the UN system common country assessments and world bank poverty reduction strategy papers*. FIVIMS Secretariat and Wageningen University and Research Centre: www.fao.org/DOCREP/006/Y5095E/Y5095E00.htm
13. Barrett CB. 2010. Measuring food insecurity. *Science* 327:825–28
14. Food and Agricultural Organizations (FAO). 2006. *EC-FAO Food Security Information for Action*. Food and Agriculture Organization of the United Nations, Rome. www.fao.org/3/al936e/al936e00.pdf
15. Ahmed Jamadder F. 2018. Food security in rural Bangladesh: examining the role of women's earnings and food budget control. *Journal of Food Security* 6(1):1–19
16. United Nations Development Program. 2010. *Guidance Note on Recovery Livelihood*. International Recovery Platform. www.undp.org/india/publications/guidance-note-recovery-livelihood
17. Monirul Alam GM, Alam K, Mushtaq S. 2018. Drivers of food security of vulnerable rural households in Bangladesh. *South Asia Economic Journal* 19:43–63
18. Woodhill J, Kishore A, Njuki J, Jones K, Hasnain S. 2022. Food systems and rural wellbeing: challenges and opportunities. *Food Security* 14:1099–121
19. Faridi R, Wadood SN. 2010. *An econometric assessment of household food security in Bangladesh*. The Bangladesh Development Studies. pp. 97–111.
20. Abbade EB. 2017. Availability, access and utilization: Identifying the main fragilities for promoting food security in developing countries. *World Journal of Science, Technology and Sustainable Development* 14:322–35
21. Mainuddin M, Kirby M. 2015. National food security in Bangladesh to 2050. *Food Security* 7:633–46
22. Wahlqvist ML, McKay J, Chang YC, Chiu YW. 2012. Rethinking the food security debate in Asia: some missing ecological and health dimensions and solutions. *Food Security* 4:657–70
23. Rahman O, Zaman MU. 2017. New paradigm in understanding food security in Bangladesh: experiences from fieldworks in coastal areas of southwest Bangladesh. *Review of Applied Socio-Economic Research, Pro Global Science Association*. 14:37–46 <https://ideas.repec.org/a/rse/wpaper/v14y2017i2p37-46.html>
24. Abdul Latif M, Hanif M. 2016. Impact of price hike on the standard of living of middle income people: a study on sylhet city, Bangladesh. *Management Studies and Economic Systems* 2:279–86
25. Food and Agricultural Organizations (FAO). 2008. *The State of Food Insecurity in the world*. Food and Agriculture Organization of the United Nations, Rome
26. Food and Agricultural Organizations (FAO). 2006. *Policy Brief: Food Security*.
27. Ahmed AU, Ahmad K, Chou V, Hernandez R, Menon P, et al. 2013. *The status of food security in the Feed the Future zone and other regions of Bangladesh: results from the 2011–2012 Bangladesh Integrated Household Survey*. Project Report. The US Agency for International Development, International Food Policy Research Institute, Dhaka.
28. Bangladesh Bureau of Statistics (BBS). 2021. *Rajshahi Division, Bogura district*. www.bbs.gov.bd/site/page/2888a55d-d686-4736-bad0-54b70462afda/District-Statistics
29. Rahman MM, Kabir KS, Al Helal MA. 2014. Women's economic empowerment through micro-credit program: a case of tengamara mohila sabuj sangha (TMSS) in rural Bangladesh. *Journal of Business and Technology (Dhaka)* 8:41–62
30. Islam MS, Samreth S, Islam AHMS, Sato M. 2022. Climate change, climatic extremes, and households' food consumption in Bangladesh: a longitudinal data analysis. *Environmental Challenges* 7:100495
31. Carson J, Boege S. 2020. *The Intersection of Food Availability, Access, & Affordability with Food Security and Health*. Thesis. University of New Hampshire, US.
32. Garcia-Diez J, Gonçalves C, Grisoldi L, Cenci-Goga B, Saraiva C. 2021. Determining food stability to achieve food security. *Sustainability* 13:7222
33. Ingram J. 2011. A food systems approach to researching food security and its interactions with global environmental change. *Food Security* 3:417–31
34. Rahman MM, Islam MA, Islam MT. 2023. Analyzing food (in) security among low and low-middle-income people residing in Dhaka South City: exploration of four Pillars of food security. *Journal of Business and Development Studies* 2(1):1–16
35. Clapp J. 2015. *Food security and international trade-Unpacking disputed narratives*. Vol. 12. Romo: Food and Agriculture Organization of the United Nations. 50 pp. www.fao.org/3/a-i5160e.pdf
36. Maziya-Dixon B. 2004. *Nigeria food consumption and nutrition survey 2001–2003: summary*. Nigeria: International Institute of Tropical Agriculture. www.iita.org
37. International Food Policy Research Institute (IFPRI). 2022. *Digital Financial Services Adoption among SMEs in the Midstream of Agricultural Value Chains*. www.ifpri.org/project/digital-financial-services-adoption-among-smes-midstream-agricultural-value-chains
38. Sen A. 1981. *Poverty and Famines - An Essay on Entitlement and Deprivation*. Oxford: Oxford University Press.
39. Hussain AMZ, Talukder MQK, Ahmed T. 2014. *Nutrition Background Paper to Inform the Preparation of the 7th Five Year Plan*. Report. General Economics Division Planning Commission, Government of the People's Republic of Bangladesh, Dhaka. https://erd.portal.gov.bd/sites/default/files/files/erd.portal.gov.bd/page/2f97258a_6f25_479a_8545_a498c65783f2/Development%20Planning%207FYP%20%26%20SDG.pdf.
40. Rahman MM, Shindaini AJM, Abdullah ABM. 2023. Provision of education to Rohingya refugee children in Bangladesh: exploring the forms of discrimination and intersectionality. *Asia Pacific Education Review* 24:433–45
41. Haque MA, Choudhury N, Tanvir Ahmed SM, Farzana FD, Ali M, et al. 2022. Food security status of Suchana-participating households in north-eastern rural Bangladesh. *Frontiers in Public Health* 10:950676



Copyright: © 2023 by the author(s). Published by Maximum Academic Press, Fayetteville, GA. This article is an open access article distributed under Creative Commons Attribution License (CC BY 4.0), visit <https://creativecommons.org/licenses/by/4.0/>.