

A Summary of Recent Studies Published by DIU Researchers



**SUSTAINABLE
DEVELOPMENT
GOALS**



Daffodil
International
University



The researchers of Daffodil International University (Faculty, Students, Alumni) have conducted a number of research projects related to SDG 2 (Zero Hunger) and results of the projects have also been published as research papers in various international reputed peer reviewed and Scopus indexed journals. The summary of the research publications related to SDG 2 are given below:

1. Impact of lockdown due to COVID-19 on nutrition and food security of the selected low-income households in Bangladesh

[Kazi Muhammad Rezaul Karim](#)¹, [Tasmia Tasnim](#)²

- ¹ Institute of Nutrition and Food Science, University of Dhaka, Dhaka, 1000, Bangladesh.
- ² Department of Nutrition and Food Engineering, Faculty of Allied Health Science, Daffodil International University, Dhaka, 1207, Bangladesh.
- DOI: [10.1016/j.heliyon.2022.e09368](https://doi.org/10.1016/j.heliyon.2022.e09368)

Published in: [Heliyon Volume 8, Issue 5](#)

Abstract

This study aims to explore the impact of COVID-19 pandemic lockdown on household food security and the nutritional status of the children and identify the risk factors associated with it. A cross-sectional study was conducted in 220 households having at least one under 5 children of Narayanganj district in Bangladesh. Household food insecurity, coping strategies and nutritional status of children were the main outcome variables. Multivariate logistic regression analysis was performed to investigate the significant determinants. A total of 93.2 % of households were food insecure, with 32.3% experiencing mild, 18.6% facing moderate, and 42.3% undergoing severe food insecurity. Forty seven percent households used high coping strategies and 93.2% of households consumed less expensive/preferable food as the common coping technique. Logistic regression analysis showed the variables significantly associated with moderate to severe food insecurity were low household income before COVID-

19 (AOR = 46.07, CI: 13.68-155.10), more reduction of family income (AOR = 32.47, 95% CI: 9.29-113.41), maternal occupation as housewife (AOR = 7.73, CI: 2.59-23.07), losses of job (AOR = 4.28, CI: 1.31-13.98) and higher family members (AOR = 3.39, CI: 1.07-10.71). The prevalence of stunting, underweight and wasting in children under 5 years of age were 29.0%, 23.4% and 15.6%, respectively. Significantly the independent predictors of stunting were maternal occupation, education, age, household head occupation, child age, and the coping strategy score. Household dietary diversity score was an important independent predictor of underweight and wasting. In conclusion, social safety net initiatives for vulnerable households along with maternal education and employment should be strengthened to reduce hunger and malnutrition.

Keywords: Children; Coping strategy; Covid-19; Household food security; Malnutrition; Maternal employment.

2. Implications of updated protocol for classification of childhood malnutrition and service delivery in world's largest refugee camp amid this COVID-19 pandemic

[Afsana Anwar](#)¹, [Probal Kumar Mondal](#)¹, [Uday Narayan Yadav](#)^{2 3 4}, [Abu Ahmed Shamim](#)⁵, [Abu Ansar Md Rizwan](#)¹, [Sabuj Kanti Mistry](#)^{4 5 6 7}

- ¹ Health and Nutrition, Social Assistance & Rehabilitation for the Physically Vulnerable (SARPV), Cox's Bazar, Bangladesh.
- ² National Centre for Epidemiology and Population Health, Research School of Population Health, The Australian National University, Canberra, ACT, Australia.
- ³ Center for Research Policy and Implementation, Biratnagar, Nepal.
- ⁴ Centre for Primary Health Care and Equity, University of New South Wales, Sydney, NSW2052, Australia.
- ⁵ BRAC James P Grant School of Public Health, BRAC University, Dhaka1213, Bangladesh.
- ⁶ ARCED Foundation, 13/1, Pallabi, Mirpur-12, Dhaka, Bangladesh.

- ⁷ Department of Public Health, Daffodil International University, Dhaka1207, Bangladesh.
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Published in: [Public Health Nutrition](#) , [Volume 25](#) , [Issue 3](#)

Free PMC article

Abstract

Objectives: During the COVID-19 pandemic, the authorities made a change in the classification of malnutrition and concomitant service delivery protocol among the Rohingya children, residing in world's largest refugee camp, located in Cox's Bazar, Bangladesh. In this paper, we discussed the potential implications of this updated protocol on the malnutrition status among children residing in the Rohingya camps.

Design: This paper reviewed relevant literature and authors' own experience to provide a perspective of the updated protocol for the classification of malnutrition among the children in the Rohingya camps and its implication from a broader perspective.

Setting: Rohingya refugee camps, Bangladesh.

Participants: Children aged less than five years residing in the Rohingya camps.

Results: Major adaptation during this COVID-19 was the discontinuation of using weight-for-height z-score (WHZ) and the use of only mid upper arm circumference (MUAC) and presence of oedema for admission, follow-up and discharge of malnourished children in the camps. However, evidence suggests that use of MUAC only can underestimate the prevalence of malnutrition among the children in Rohingya camps. These apparently non-malnourished children are devoid of the rations that they would otherwise receive if classified as malnourished, making them susceptible to more severe malnutrition.

Conclusions: Our analysis suggests that policymakers should consider using the original protocol of using both MUAC and WHZ to classify malnutrition and retain the guided ration size. We also believe that it would not take an extra effort to adopt the original guideline as even with MUAC only guideline, certain health measures needed to adopt during this pandemic.

Keywords: Mid upper arm circumference; Moderate acute malnutrition; Rohingya; Severe acute malnutrition; Weight-for-height z-score.

3. Implementing E-Commerce Mobile and Web Application for Agricultural Products: e-Farmers' Hut

[Sovon Chakraborty](#)

Department of Computer Science and Engineering, Ahsanullah University of Science and Technology, Dhaka, Bangladesh

[F. M. Javed Mehedi Shamrat](#)

Department of Software Engineering, Daffodil International University, Dhaka, Bangladesh

[Md Saidul Islam](#)

School of Computer and Software Nanjing University of Information Science and Technology, China

[Foysal Kabir](#)

School of Computer Science Jiangsu University of Science and Technology China

[Ali Newaz Khan](#)

Department of Computer Science and Engineering, Ahsanullah University of Science and Technology, Dhaka, Bangladesh

[Ankit Khater](#)

Department of Computer Science & Engineering, Jadavpur University, India

Published in: [6th International Conference on Trends in Electronics and Informatics](#)

Abstract:

In Bangladesh, the increased number of brokers has resulted in a price increase in the agricultural goods market. They acquire items from farmers at a discount and resell them to consumers at a premium. This deprives farmers, while customers pay an unreasonable price for basic essentials. This study aims to develop an e-commerce mobile and web application called 'e-Farmers' Hut' to facilitate direct producer-to-customer engagement. The application goal to maximize the advantages to producers and customers by eliminating middlemen's control. Both applications operate sequentially on the same database. Farmers and customers each have their profile to which they may submit the relevant information. Additionally, to optimize facilities use, also introduced an electronic payment method. Customers may see lists of available items that verified farmers have posted. The application has passed the testing process with expected outcomes. The technology has the ability to considerably simplify direct sales and purchases of items between farmers and consumers.

Keywords

- [E-commerce](#) ,
- [Mobile Application](#) ,
- [Web Application](#) ,
- [Farmers](#) ,
- [Consumers](#) ,
- [Agricultural Product](#) ,
- [Web Technology](#) ,
- [Electronic Payment](#)

4. Smart Agricultural System Using IoT

- [Md. Faridul Islam Suny](#), Department of Computer Science and Engineering, Daffodil International University

- [Tania Khatun](#), Department of Computer Science and Engineering, Daffodil International University
- [Zahura Zaman](#), Department of Computer Science and Engineering, Daffodil International University
- [Md. Monjourur Roshed Fahim](#), Department of Computer Science and Engineering, Daffodil International University
- [Md. Ariful Islam](#), Department of Computer Science and Engineering, Daffodil International University
- [Rashida Jesmin](#), Department of Zoology, Government Hajee Korop Ali Memorial College, Sirajganj, Bangladesh
- [Tajim Md. Niamat Ullah Akhund](#), Department of Computer Science and Engineering, Daffodil International University

Part of the [Lecture Notes in Networks and Systems](#) book series (LNNS, volume 333)

Abstract

In today's people's existence, the perception of IoT is soaring. No exception is agriculture. Their pretty substantial excellence is already evident. The relevance of IoT in agriculture is also beginning to emerge. We have displayed a framework of auto irrigation, pest detection, and notification system incorporating the utilization of IoT in agriculture in this paper. The implementation of this framework by using different types of sensors and IoT devices is pretty optimistic and would make a major contribution to agricultural growth.

Keywords

- Internet of things (IoT)
- Determining the land condition
- Auto irrigation

- Pest identification
- Remote monitoring

5. IoT Based Automated Monitoring System for the Measurement of Soil Quality

- [Pratoy Kumar Proshad](#), Department of Computer Science and Engineering, Daffodil International University
- [Anish Bajla](#), Department of Material Science and Engineering, Khulna University of Engineering and Technology, Khulna, Bangladesh
- [Adib Hossin Srijon](#), Department of Industrial and Production Engineering, Ahsanullah University of Science and Technology, Dhaka, Bangladesh
- [Rituparna Talukder](#), Department of Civil Engineering, Bangladesh Army University of Engineering and Technology, Natore, Bangladesh
- [Md. Sadekur Rahman](#), Department of Computer Science and Engineering, Daffodil International University

Part of the [Smart Innovation, Systems and Technologies](#) book series (SIST, volume 302)

Abstract

Agriculture has long been the principal source of income in our country. However, agriculture is being hampered as a result of people migrating from rural to urban areas. The purpose of the study is to make a device that measures the soil and air quality on its own, not by any human action or anything. The device will automatically collect data from the soil and send it over the internet to various devices. This project includes other features like a wireless monitoring system and soil moisture and temperature sensing. This project also includes some comparisons between measured results by excel sheet for better soil quality. The sensors collect the result from the soil and supply the data through the internet. The primary focus of the paper is to demonstrate a

project that helps to do farming with advanced techniques. The data obtained from the soil is pushed to the cloud for future analysis. Our motive of this research is to help the farmers and the agricultural officers in soil and weather testing.

Keywords

- IoT
- Automated
- Smart
- Web-linked
- Database
- API
- Thingspeak
- Realtime Data