

Status of Nutritional Services to Vulnerable Population in West Bengal and Their Hardship during COVID-19 Pandemic: A Community-based Qualitative Exploration

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Abstract

Introduction: In response to the COVID-19 pandemic, restrictions were imposed on various activities including nutritional services. This study was conducted with the objective to explore the status of the nutritional services and to identify the hardship and barriers faced by the vulnerable population and challenges for service providers and program managers during the initial phase of pandemic. **Materials and Methods:** A community-based cross-sectional qualitative study was conducted among three vulnerable population groups (slum dwellers, tribal population, and residents of disaster-prone area) in three districts of West Bengal, the reference period being April–September 2020. To assess the status of nutritional services and identify existing barriers or challenges, the study employed a mixed-methods approach utilizing focus group discussions (FGDs) as well as in-depth interviews (IDIs) conducted with beneficiaries, service providers and program managers. One habitation in each district was selected to obtain case scenarios on food insecurity and hardship. Descriptive analysis of household surveys and thematic analysis of FGDs and IDIs were done, and the findings were triangulated. **Results:** Different nutritional services (supplementary nutrition, micronutrient supplementation, growth monitoring, nutrition counseling, and nutrition rehabilitation) were disrupted. Shifting from hot-cooked meals to dry take-home ration was the most conspicuous change during restoration phase. Food security was absent in majority of the households. Reduction of income affected their affordability, which along with difficult accessibility to diverse food items contributed to their hardship. Service providers identified several challenges, including increased workload due to both COVID-19 activities and a rise in beneficiaries, transportation difficulties, and experiences of stigma and discrimination. Long administrative decision-making process, additional hurdles due to cyclone, and containment zones were identified as challenges by the program managers. **Conclusion:** As the hardship of vulnerable population was pervasive, it is necessary to formulate mitigating measures in light of the identified challenges and to combat similar crises in future.

Keywords: COVID-19, food insecurity, nutritional services, qualitative study, vulnerable population

INTRODUCTION

India faced the challenges of COVID-19 pandemic from March 2020 and had to confront three major waves till February 2022. In response to the COVID-19 pandemic, stringent restrictive measures, often referred to as ‘lockdowns’, were implemented from March 25, 2020, to May 31, 2020, with the intention of curbing transmission and allowing for healthcare system preparedness. These measures were subsequently followed by a gradual easing, termed as ‘unlocking’.^[1,2] The COVID-19 pandemic and subsequent restrictions not only

posed enormous challenges to the health system of India but also had a huge effect on economy, nutrition, livelihood, social lives of people, and welfare services by the government as well as the overall well-being of the individuals and the communities.^[3] Food production, distribution, livelihood, and access to food were severely compromised during lockdown. Those were aggravated by the fear of people to this unknown

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disease and restrictions as well as reluctance to move outside home even for seeking care and services.^[4] It was estimated that in low- and middle-income countries, the proportion of population having acute food scarcity would be doubled by the end of 2020 and there could be a rise by 14.3% in the proportion of moderate/severe wasting among under-five children.^[5-7]

Proper implementation of the nutritional programs was necessary to accomplish the nutrition-related Sustainable Development Goal in India.^[8] After the initial shock period, the government started to reorganize the necessity to restore the health, nutrition, and social services. A multi-pronged approach was implemented, including the provision of additional food grains through the public distribution system (PDS), dry take-home rations (THR) distributed both by Anganwadi centers (AWCs), and schools for eligible beneficiaries.^[9] The government launched a scheme to provide additional financial help to the vulnerable to cope with the crisis. The preventive and promotive health services were started in a staggered approach.

In this context, this study was conducted with the objective of exploring the status of the nutritional services provided and identifying the hardship faced by the vulnerable population and the barriers/challenges faced by the beneficiaries, service providers, and program managers during the initial phase of pandemic.

MATERIALS AND METHODS

Study type, study design, study setting, and duration

A community-based cross-sectional qualitative study was conducted in purposively selected three districts of West Bengal. Reference period for the study was the time period of April 2020 to July 2020 when the lockdown was most stringent. The data were collected from January 2022 to May 2022.

Study area and study population

Out of the 23 districts of West Bengal, 3 districts were chosen purposively to include three vulnerable population groups, namely slum dwellers (Howrah), tribal population (Purulia), and population residing in natural disaster-prone area (South 24 Parganas).

Various nutritional services that were in vogue during the reference period were supplementary nutrition and iron and folic acid (IFA) supplementation to children <6 years of age, pregnant and lactating women under Integrated Child Development Services (ICDS) operating through the network of AWCs; mid-day meal (MDM) to school-going students up to class VIII and Weekly IFA Supplementation (WIFS) to school-going adolescents of either gender through schools; distribution of food items at low/no cost through the PDS, popularly known as ration; and micronutrient supplementation, growth monitoring and nutritional counseling, and services by nutritional rehabilitation centers (NRCs) for severely acute malnourished children through public health system.^[10-12] All the beneficiaries of these services as well as the service providers and program managers responsible for delivering

the services, at different levels in the system, were considered study population.

Sample size and data collection procedure

From each selected district, two subdistrict administrative units (community development blocks for Purulia and South 24 Parganas and municipality/corporation for Howrah) were selected purposively based on the highest proportion of target population groups as per existing records. The study employed focus group discussions (FGDs) with beneficiaries and frontline workers (FLWs) in each unit. Additionally, in-depth interviews (IDIs) were conducted with a school teacher in charge of the WIFS program per block, mothers of children with severe acute malnutrition (SAM) during the reference period, nutritionists at NRCs, program managers at the block and district levels [including Child Development Project Officer-ICDS, Block Medical Officer of Health (BMOH), Public Health Nurse (PHN); District Program Officer-ICDS, Chief Medical Officer of Health (CMOH) and Deputy CMOH-III; block- and district-level officials from General Administration (Additional District Magistrate) in the selected districts]. Each FGD session consisted of 8–12 participants and was approximately of 1 hour duration. Each session was conducted in a predecided time and place of mutual convenience. Concurrently, one small habitation with around 100 households of vulnerable population in each district was selected purposively to obtain case scenarios on food insecurity and hardship, based on expert opinion and data saturation [Figure 1].

For the case studies, household-level information were collected through a predesigned and pretested questionnaire. This included questions on sociodemographic variables (age, religion, caste, educational status, marital status of the respondent, and perceived socioeconomic status), household food security level, and hardship they faced for the arrangement of food during the reference period. Due to the difficulty in reporting income, respondents were asked to rate their perceived socioeconomic status on a 5-point Likert scale, the options being poor, almost poor, just getting by, living comfortably, and very well off. During the analysis, poor, almost poor, and just getting by were clubbed together as an economically weaker section. Household food security was assessed using the Food Insecurity Experience Scale. This is a standardized and validated scale, available from the Food and Agriculture Organization, United Nations. In this study, the Bengali version of the scale was utilized.^[13] The scale was pretested and adapted to assess food insecurity during the reference period. FGD and in-depth interview (IDI) guides for capturing different domains of nutritional scenario, such as “status of nutritional and related health services to the population during the reference period,” “barriers faced by the beneficiaries,” and “challenges faced by the service providers as well as program managers.”

Data analysis

Data from household survey were codified and entered in Microsoft Excel by two researchers independently. Categorical data were expressed in frequency and percentages.

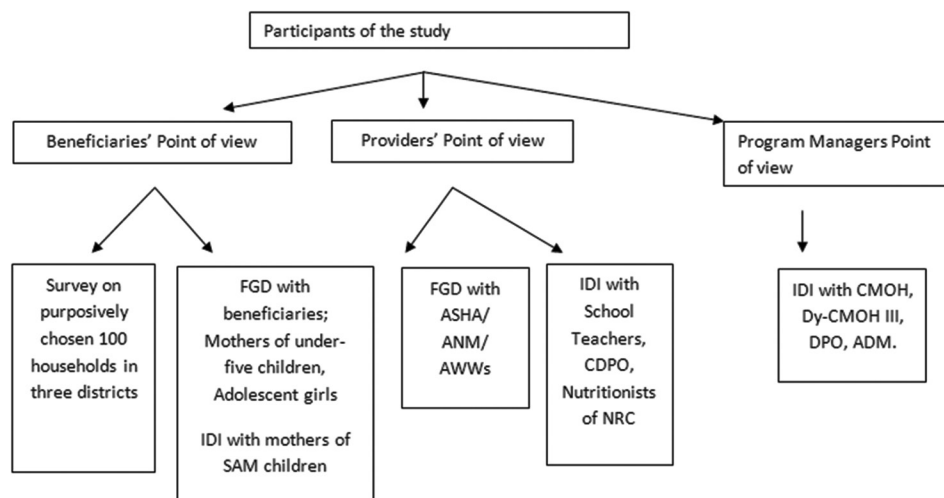


Figure 1: Study participants, study technique, and domains of nutritional scenario. FGD: Focus group discussion, IDI: In-depth interview, SAM: Severe acute malnutrition, ASHAs: Accredited Social Health Activists, ANM: Auxiliary Nurses and Midwives, AWWs: Anganwadi Workers, CDPO: Child Development Project Officer, NRCs: Nutritional Rehabilitation Centers, CMOH: Chief Medical Officer of Health, Dy-CMOH-III: Deputy CMOH III, DPO: District Program Officer, ADM: Additional district magistrate

All the interviews and discussions were audio-recorded and transcribed on the same day anonymously. The transcribed files were translated into English. The transcripts were read several times by the research team members and analyzed thematically. Transcripts were reviewed to develop codes. Then, codes were applied manually with memoing. Codes were compared and contrasted to develop categories and finally to develop themes.

Ethical considerations

The study had obtained ethical clearance from the Institutional Ethics Committee (Vide memo no. CMSDH/IEC/277/03-2022 dated March 05, 2022). It was done in accordance with the guidelines laid down by the Helsinki Declaration, updated in 2013. All collected data including audio-recordings and transcripts were kept maintaining strict confidentiality.

RESULTS

A total of 27 FGDs, 36 IDIs, and 3 case studies were conducted among various stakeholders in three selected districts.

The three case scenarios highlighted the high burden of food insecurity and lack of access to essential services indicating the inadequacy of the government interventions to reach all the beneficiaries. Significant findings are mentioned in Table 1.

These case scenarios revealed a depressing situation, the intricate details of which were further explored from the FGDs and IDIs. Although all the members suffered more or less, the nutritionally vulnerable groups were affected most. “....we could not afford something (fish, fruits etc.) separately for the children. We had to give whatever we the adults consumed... the same rice and potato” (mother of under-five child, South 24 Parganas).

Table 2 depicts the status of nutritional services as reported by the service providers and program managers. Disruption of

services was widespread and was evident from the experiences shared by all three categories of stakeholders. The nature of lack of availability of services by the AWCs and schools was either absolute (for example, total stoppage of hot-cooked meals), or perceived lack, because of over-reliance of such services by vulnerable people during pandemic. One mother of under-five child from Purulia shared, “I used to require 25 Kg rice every month for my family. During that period, I received 13 Kg from PDS, 2 Kg from schools and 2 Kg from Khichudi school..... What could I do? Had to manage with that (Shrugging the shoulder with deep sigh).....” Only rice and wheat were available through PDS. Nonavailability and nonaffordability of other food items (especially vegetables, fruits, and flesh foods) led to gross deterioration of quality of diet. One mother of under-five child from South 24 Parganas shared, “....we could not afford something (fish, fruits etc.) separately for the children. We had to give whatever we the adults consumed... the same rice and potato.” The service providers and program managers unequivocally considered the nonavailability of hot-cooked meals and eggs as a serious compromise with the diet from AWCs and schools. There was a mismatch in procurement of THR items (rice, pulses, and potato), desiccation of potatoes and loss of weight, sometimes leading to wastage, and further unavailability. Stigma toward FLWs involved in health and related services led to nonacceptance of certain services by the beneficiaries. “We used to carry Iron tablets in our handbags, but whom to give.... Nobody wanted to even talk to us.... especially those families having fever cases or those who just returned from outside area” (Accredited Social Health Activist, South 24 Parganas).

It was also reported that hoarding of items by certain individuals created relative unavailability for others. “I saw that it (baby food packet) was there (in the shop), but I was told that it was out of stock. I witnessed that 4-5 packets were sold to someone

Table 1: Case scenarios of three vulnerable population groups on their household food security and hardship during pandemic

Case study 1: Urban slum Number of households surveyed: 106	Case study 2: Tribal village Number of households surveyed: 102	Case study 3: Disaster-prone village Number of households surveyed: 108
<p>About two-thirds of the respondents were female, half belonged to the 30–49 years age group, and one-fourth of the heads of households had only primary-level education. Most of the respondents (87.7%) perceived their socioeconomic status as weak</p> <p>During the reference period, every two in three households experienced food insecurity. About 47% reported skipping meals, and 25% could not manage even a single meal all day, at least once during those 4 months</p> <p>Main reasons for the difficulty in arranging for food were lack of cash, price hike of essential items, and inability to go outside in fear of contracting COVID-19</p> <p>Although the majority (82%) of households received ration, including additional ration from the PDS, more than half of each category of beneficiaries eligible for receiving THR from schools or the AWCs did not receive it. About one-fourth of schoolchildren did not receive IFA tablets</p> <p>None of the respondents reported receiving any financial assistance from any government, private, or charitable organizations</p>	<p>About half of the respondents were female, 56% were over the age of 40, and only one-third of the heads of households had education beyond primary level. Almost all of the respondents (99%) perceived their socioeconomic status as weak</p> <p>The study found that six out of seven households experienced food insecurity. About a half reported skipping meals, and nearly one-third had no meal for a day at least once during the reference period</p> <p>Main reasons for the difficulty in arranging for food were lack of cash, price hike, and closure of shops. Three-fourths of the households did not face hardship due to fuel, as they could arrange firewood from the local forest</p> <p>Only rice and wheat were available from the PDS; the outlets were open for a brief period of time. The supply of THR was dismal and was delayed by at least 1 month. About 40% of schoolchildren did not receive IFA tablets</p> <p>Financial assistance from any government, private, or charitable organizations was not received during the reference period</p>	<p>About one-third of the respondents were female, 54.7% were in the 20–39 age group, and half of the heads of households had education only up to primary level. About 92% of the respondents perceived their socioeconomic status as weak</p> <p>The study found that four out of five households experienced food insecurity. About half reported skipping meals, and one-third faced the most severe form of food insecurity</p> <p>For a considerable period of time, they had to take shelter in relief camps after the cyclone hit the area. At that time, they had to rely mostly on dry food items. The majority of the households (86%) had access to firewood from the local forest as the source of fuel</p> <p>The PDS/ration was the predominant source of grains. Nearly 40% of each of the eligible preschool children and lactating women and 27% of the pregnant women did not receive THR; however, THR from school reached all but 10% of beneficiaries. About half of schoolchildren did not receive IFA tablets</p> <p>A small proportion of respondents (11%) had financial support from NGO</p>

THR: Take-home ration, PDS: Public distribution system, AWCs: Anganwadi centers, IFA: Iron and folic acid, NGO: Nongovernmental organizations

Table 2: Status of nutritional services as reported by the service providers and program managers

Domain of nutritional services	Status of services
Ration from PDS	Nearly regular in three districts. Those without digital ration card were also supplied. Special entitlements were also provided (Extra ration started during <i>Aila</i> , a cyclone in 2008 in South 24 Parganas, <i>Jangalmahal</i> package in Purulia)
THR - from AWCs and from schools	The distribution of THR was started from late April 2020 at a monthly interval. The allocation was same for all categories of beneficiaries (rice - 2 kg, potatoes - 2 kg, Masoor dal/lentil - 300 g). Concern about both the quantity and quality of THR was raised by the service providers and program managers
Growth monitoring of the under-five children	Nonexistent during the reference period
IFA supplementation (WIFS) to school-enrolled boys and girls	Initially absent; then distribution was started along with THR. For beneficiaries beyond the age of eligibility of MDM, further delay in distribution until when they visited schools for submitting “activity reports” (only reported from South 24 Parganas)
IFA supplementation to women and preschool children	Through ASHAs during house visits for fever survey
Vitamin A supplementation	Nonexistent during the reference period
Nutritional counseling	Some dietary advice to antenatal and postnatal women, concentrating mostly on “immunity boosting foods” to prevent COVID, over telephone. Infant and young feeding (IYCF) Counseling, a traditionally low-priority area, was nonexistent
NRC	The NRCs had to shut down as there was fear of spread of COVID-19 among the inmates. Screening activities at field level were also stopped

THR: Take-home ration, PDS: Public distribution system, AWCs: Anganwadi centers, MDM: Mid-day meal, IFA: Iron and folic acid, IYCF: Infant and young child feeding, NRCs: Nutritional rehabilitation centers, WIFS: Weekly Iron and Folic Acid Supplementation, ASHAs: Accredited Social Health Activists

else... I was denied” (mother of under-five child, Howrah). Hike of price of grocery and perishable items made them nonaffordable to a large portion of the vulnerable population.

Reduction of income was pervasive, affecting majority of the beneficiaries. Some individuals who lost their jobs had to shift to

alternative way of earning, however, that could not match their needs. In the absence of cash in hand or other form of financial assistance, they often had to borrow money. Loss or reduction of earnings led to financial misery which was manifested through exhausted savings and accumulated debt. *“Sir, those who had something could have managed. But those who did not have*

anything, were gravely affected. Today we are in a relatively better condition, hence, we could sit here and talk to you. But those who were most severely affected, they are not present here. Their financial condition worsened due to Corona (COVID-19). The whole family is involved in some type of job. So that, they could repay the debt they had accumulated during that 6-month period” (mother of under-five child, Howrah).

After the initial hurdle, when the services were initiated in the redefined state, the health sector was overwhelmed by COVID-19-related activities. The ICDS sector faced the burden of increased beneficiaries due to the influx of families of migrant laborers and those of nonusual beneficiaries. The list was further increased by inclusion of some special vulnerable groups (elderly persons with no income, destitute, etc.) in some districts.

Communication was a major factor during the changed scenario. The service providers could not reach out to all the beneficiaries often due to lack of or active Internet connection, especially post-*Amphan* in South 24 Parganas. Difficulty in accessing THR from schools (MDM) was felt by students for the clause of mandatory presence of any parents. Bizarre operating times as well as lack of information led to barriers in accessing whatever available. “...*I was pregnant then, and my family members did not allow me to go out in the crowds. The timings of market opening were not suitable for the male members to go to market (for buying variety of food items). As a result we had to manage mostly with the rice stored in house and whatever grown in our own land...*” (mother of under-five child, South 24 Parganas) [Figure 2].

DISCUSSION

This exploration depicted a widespread disruption of services of nutrition programs and hardship faced by the vulnerable population. As evident from the opinions of all three stakeholders, i.e., beneficiaries, service providers, and program managers, the barriers/challenges in maintaining nutrition during the early phase of pandemic are centered around three thematic areas, availability of services, affordability of the population concerned, and accessibility to them.

A number of published literature revealed that the disruption of services of nutrition programs was extensive. Fixed day events (e.g., village health and nutrition day), growth monitoring, routine immunization, etc., were among the most affected services and food supplementation was the least affected service as evident from a telephonic interview-based study covering seven states in India.^[14] Similarly, this study also observed the continuation of dry THR distribution, initiated after an initial delay, from both AWCs and schools. Periodical growth monitoring by the frontline health and nutrition workers, which is a crucial strategy to address childhood malnutrition in national programs, was stopped. Although the exact magnitude of increase in malnutrition during the pandemic could not be assessed, it was perceived by the service providers and program managers alike that

the nutritional status of children did worsen.^[14,15] Avula *et al.* reported that IFA supplementation was disrupted in two-third of the studied districts.^[15] In the present study, it was found that although the supply of IFA up to block level was not a problem, due to several issues, those could not be distributed to the beneficiaries. The burden of anemia among antenatal women was perceived to be increased due to this reason.^[16] The UNICEF and partners reported that as per the Poshan Abhiyan dashboard, NRCs were functional in 11 out of 13 states; however, the details of the ground scenario were unavailable.^[17] We found that a number of NRCs had to shut down because of a lack of transportation and fear of spread of infection. Thus, both community-based and facility-based nutritional services were hampered during the stringent restriction phase.

Food insecurity was a global phenomenon during COVID-19 pandemic.^[18,19] In Southeast Asian countries, the pandemic exacerbated household food insecurity due to disruptions in school and Anganwadi Centers (AWCs) meal programs, lack or reduced support from government programs/ schemes, and diminished household resources stemming from poverty.^[20,21] This, in turn, led to the deterioration of child and adult feeding practices.^[3,22-24] A study conducted in economically backward districts of Uttar Pradesh, Bihar, and Odisha depicted that dietary diversity among women declined in May 2020 compared to May 2019, and this occurred despite 80%, 50%, and 30% of surveyed households, respectively, reported to avail special PDS, direct benefit transfer, and ration from AWCs.^[25] Researchers in the concerned field have documented how the vulnerability of people has been deepened due to the combined effects of the pandemic and natural disasters like cyclones on nutrition.^[26] It was also studied that during emergencies, concern regarding the safety of the beneficiaries and service providers looms larger than the quality of the services.^[27,28] This has been reiterated by our study participants that during the cyclone, they mostly received supplies related to infection control, for example, soaps, masks, hand gloves, etc., and the food supplies were mainly dry food items for all, irrespective of individual need.

Repurposing the health and nutrition FLWs, who were overburdened with additional responsibility of COVID-19-related activity, was the major challenge as identified by several studies.^[23-26] The FLWs also faced challenges such as fears of getting infected, social challenges of being shunned by the community, and irregular receipt of protective equipment.^[15] These issues were echoed in the current study too. In addition to that, certain conspicuous changes in lives and livelihoods of people aggravated the difficulties for the service providers. For example, in-migration of workers from different places to their rural residences after the restriction led to increased beneficiary of the AWC.^[26] Similar finding was identified in the present study. All these put together, in turn, compromised the “availability” and “accessibility” of the services. Lack of “Affordability” was a barrier for the vulnerable population. This was also supported by stakeholders from the other two categories. A systematic

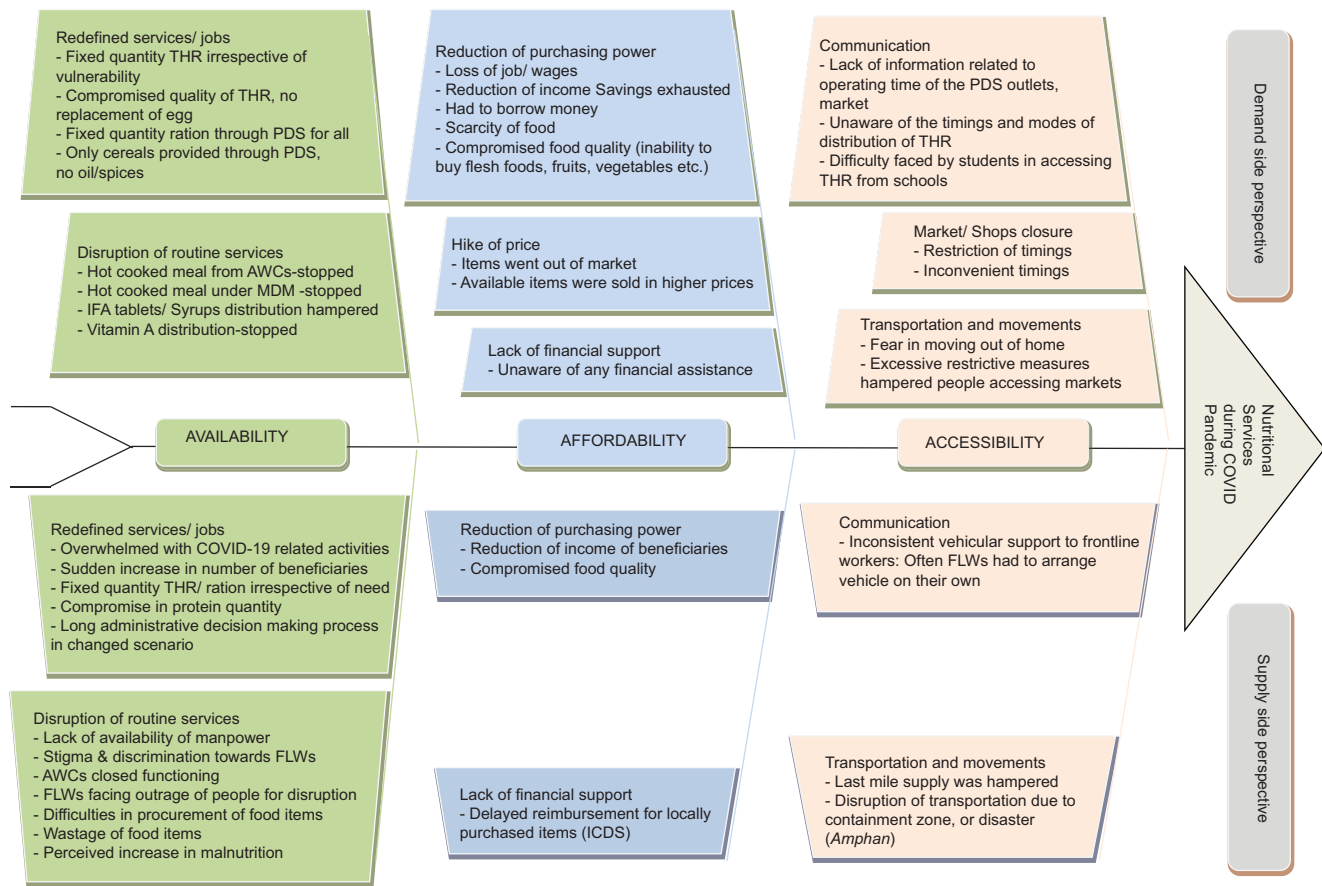


Figure 2: Graphical presentation of the factors reported by the beneficiary and service provider influencing nutritional services during COVID-19 pandemic. THR: Take-home ration, PDS: Public distribution system, AWC: Anganwadi center, MDM: Mid-day meal, IFA: Iron and folic acid, FLW: Frontline worker, ICDS: Integrated Child Development Service

review of articles from LMICs showed that one of the major direct effects of COVID-19 on food and nutrition outcomes was its negative effect on employment, income-generating activities, and purchasing power.^[28] Affordability was further deteriorated by “retail food price volatility.”^[29] Additionally, limitations on shop/market opening hours, transportation difficulties for both beneficiaries and service providers, and restricted physical access to food further compounded the problem.^[15,29,30] These findings related to “accessibility” are in congruence with our study results.

The major strength of the present study lied in its all-out effort to capture the scenario from the perspectives of nearly every type of stakeholders concerned. Member checking was also done for a part of the data collected. The inclusion of three different contexts of vulnerability, i.e., urban slum, tribal population, and disaster-prone areas, would help in transferability of the study findings in future studies based on settings with similar vulnerability. However, even with utmost care, the possibility of recall bias and social desirability bias might not be totally averted. In addition, the case study of the particular habitation included one hundred purposively selected households rather than statistically calculated representative samples. Hence, the findings of the case studies might be interpreted in that light.

CONCLUSION

COVID-19 pandemic ambuscaded the unprepared government machinery. While movement restrictions to “flatten the curve” have been a recognized public health measure, their large-scale implementation, as witnessed during the COVID-19 pandemic, was unprecedented. The present study explored the status of nutritional services to vulnerable population group in West Bengal and hardship faced by them during the early phase of the pandemic. This study found that the overall security of the food supply, encompassing both quantity and quality, was compromised, particularly for vulnerable populations. Supplementary nutrition programs, micronutrient supplementation, growth monitoring, nutrition counseling, and nutrition rehabilitation all faced disruptions of varying severity. This study identified several factors contributing to hardship, including job losses or wage reductions, decreased affordability of basic necessities, and limited access to food. The increased workload associated with COVID-19 response activities placed a significant strain on frontline health and nutrition workers, who also faced transportation difficulties, stigma, and discrimination. Additionally, the substantial rise in the number of beneficiaries for Take Home Rations (THRs) distributed by Anganwadi Centers (AWCs) presented further challenges. After the initial

hurdle, when the THRs were distributed from AWCs and schools in place of hot-cooked meals; neither the beneficiaries nor the service providers considered that as adequate.

In light of these identified challenges, it is imperative for policymakers to prioritize mitigating measures against these challenges before implementing movement restrictions in the event of similar crises in future.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. The Lancet. India's COVID-19 emergency. *Lancet* 2021;397:1683.
2. Government of India. #IndiaFightsCorona COVID-19; 2020. Available from: <https://www.mygov.in/covid-19/>. [Last accessed on 2022 Nov 15].
3. Ambast S, Kundu P, Sonawane S. Impact of COVID-19 on Child Nutrition in India: What are the Budgetary Implications. Centre for Budget and Governance Accountability (CBGA), Child Rights and You (CRY); 2021. Available from: <https://www.cry.org/downloads/health-and-nutrition/impact-of-covid-19-on-child-nutrition-in-india-what-are-the-budgetary-implications-policy-brief.pdf>. [Last accessed on 2023 Nov 14].
4. Napier-Raman S, Rattani A, Qaiyum Y, Bose V, Seth R, Raman S. Impact of COVID-19 on the lives of vulnerable young people in New Delhi, India: A mixed method study. *BMJ Paediatr Open* 2021;5:e001171.
5. Headey D, Heidkamp R, Osendarp S, Ruel M, Scott N, Black R, *et al.* Impacts of COVID-19 on childhood malnutrition and nutrition-related mortality. *Lancet* 2020;396:519-21.
6. UNICEF. An Additional 3.9 Million Children Under 5 could Suffer from Wasting in South Asia this Year Due to COVID-19 – UNICEF; 2020. Available from: <https://www.unicef.org/rosa/press-releases/additional-39-million-children-under-5-could-suffer-wasting-south-asia-year-due>. [Last accessed on 2022 Nov 15].
7. Acharya R, Porwal A. A vulnerability index for the management of and response to the COVID-19 epidemic in India: An ecological study. *Lancet Glob Health* 2020;8:e1142-51.
8. United Nations Development Programme. UNDP. The Sustainable Development Goals (SDGs). Available from: <https://www.undp.org/sustainable-development-goals>. [Last accessed on 2022 Nov 15].
9. COVID-19 has Highlighted India's Nutrition Crisis | Opinion. *Hindustan Times*; 2020. Available from: <https://www.hindustantimes.com/columns/covid-19-has-highlighted-india-s-nutrition-crisis/story-jpmp4Vv5LpY2ZdKPFfRQIK.html>. [Last accessed on 2022 Nov 15].
10. Ministry of Women and Child Development. Integrated Child Development Services – ICDS Scheme. Available from: <https://www.wcd.nic.in/integrated-child-development-services-icds-scheme>. [Last accessed on 2023 Nov 14].
11. Ministry of Education. Pradhan Mantri Poshan Shakti Nirman (PM POSHAN) in India. Available from: <https://www.pmposhan.education.gov.in/>. [Last accessed on 2023 Nov 14].
12. Ministry of Health and Family Welfare. Weekly Iron Folic Acid Supplementation (WIFS): National Health Mission. Available from: <https://www.nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1024&lid=388>. [Last accessed on 2023 Nov 14].
13. Food and Agriculture Organization of the United Nations. Applying the FIES | Voices of the Hungry. Available from: <https://www.fao.org/in-action/voices-of-the-hungry/using-fies/en/>. [Last accessed on 2024 Jun 06].
14. Department of Women and Child Development, Government of Maharashtra, Tata Trusts. ICDS System Strengthening and Community Mobilization, Chandrapur, Maharashtra-Endline Report on Key Indicators. Available from: https://www.poshancovid19.in/wp-content/uploads/2021/10/Chandrapur-Baseline-Endline-Report_12-10-2021.pdf. [Last accessed on 2023 Sep 27].
15. Avula R, Nguyen PH, Ashok S, Bajaj S, Kachwaha S, Pant A, *et al.* Disruptions, restorations and adaptations to health and nutrition service delivery in multiple states across India over the course of the COVID-19 pandemic in 2020: An observational study. *PLoS One* 2022;17:e0269674.
16. Bandyopadhyay K, Mukhopadhyay DK, Majumder S, Ray S, Mistri S, Bisoi S. Effect of COVID-19 pandemic and lockdown on fetomaternal outcome: A multi-centric, cross-sectional, secondary data analysis from West Bengal, India. *MRIMS J Health Sci* [Internet]. 2023. [Epub Ahead of Print] Available from: https://www.journals.lww.com/mjhs/abstract/9000/effect_of_covid_19_pandemic_and_lockdown_on.99944.aspx. [Last accessed on 2023 Dec 11].
17. Public Health Foundation of India, Nutrition Development Partners. Nutrition Situation in India During COVID-19 Pandemic: Synthesis of Evidence; 2022. Available from: https://www.clearinghouse.unicef.org/sites/ch/files/ch/teams-DAPM-Knowledge-DocumentsLibrary1-2022_Nutrition_situation_in_India_during_Covid_19_pandemic_Synthesis_of_evidence-2.0.pdf. [Last accessed on 2023 Nov 14].
18. Inegbedion HE. COVID-19 lockdown: Implication for food security. *J Agribus Dev Emerg Econ* 2020;11:437-51.
19. Matsungu TM, Chopera P. Effect of the COVID-19-induced lockdown on nutrition, health and lifestyle patterns among adults in Zimbabwe. *BMJ Nutr Prev Health* 2020;3:205-12.
20. Alvi M, Gupta M. Learning in times of lockdown: How COVID-19 is affecting education and food security in India. *Food Secur* 2020;12:793-6.
21. Singh DR, Sunuwar DR, Shah SK, Sah LK, Karki K, Sah RK. Food insecurity during COVID-19 pandemic: A genuine concern for people from disadvantaged community and low-income families in province 2 of Nepal. *PLoS One* 2021;16:e0254954.
22. Jaacks LM, Veluguri D, Serupally R, Roy A, Prabhakaran P, Ramanjaneyulu GV. Impact of the COVID-19 pandemic on agricultural production, livelihoods, and food security in India: Baseline results of a phone survey. *Food Secur* 2021;13:1323-39.
23. Nguyen PH, Kachwaha S, Pant A, Tran LM, Ghosh S, Sharma PK, *et al.* Impact of COVID-19 on household food insecurity and interlinkages with child feeding practices and coping strategies in Uttar Pradesh, India: A longitudinal community-based study. *BMJ Open* 2021;11:e048738.
24. Zhu PH, Mhango SN, Vinnakota A, Mansour M, Coss-Bu JA. Effects of COVID-19 pandemic on nutritional status, feeding practices, and access to food among infants and children in lower and middle-income countries: A narrative review. *Curr Trop Med Rep* 2022;9:197-206.
25. Gupta S, Seth P, Abraham M, Pingali P. COVID-19 and women's nutrition security: Panel data evidence from rural India. *Econ Polit (Bologna)* 2022;39:157-84.
26. Suri S, Kapur K. POSHAN Abhiyaan: Fighting Malnutrition in the Time of a Pandemic. (ORF Special Report); 2020. Available from: https://www.poshancovid19.in/wp-content/uploads/2021/09/ORF_SpecialReport_124_Poshan.pdf. [Last accessed on 2023 Dec 11].
27. Patten EV, Spruance L, Vaterlaus JM, Jones M, Beckstead E. Disaster management and school nutrition: A qualitative study of emergency feeding during the COVID-19 pandemic. *J Acad Nutr Diet* 2021;121:1441-53.
28. Hwang CH, Iellamo A, Ververs M. Barriers and challenges of infant feeding in disasters in middle-and high-income countries. *Int Breastfeed J* 2021;16:62.
29. Carducci B, Keats EC, Ruel M, Haddad L, Osendarp SJ, Bhutta ZA. Food systems, diets and nutrition in the wake of COVID-19. *Nat Food* 2021;2:68-70.
30. Picchioni F, Goulao LF, Roberfroid D. The impact of COVID-19 on diet quality, food security and nutrition in low and middle income countries: A systematic review of the evidence. *Clin Nutr* 2022;41:2955-64.