



EXPLORING SPECTRUM OF NUTRITIONAL CHALLENGES IN THE CONTEXT OF COVID-19 PANDEMIC IN INDIA

Vandana Sabharwal	Assistant Professor, Department of Food and Nutrition and Food Technology, Institute of Home Economics, University of Delhi, India.
Nanthini Subbiah	Professor, Department of Community Health Administration, National Institute of Health and Family, New Delhi.
Ankur Yadav*	Assistant Professor, Department of Communication, National Institute of Health and Family, New Delhi. *Corresponding Author

ABSTRACT While the short-term effects of COVID-19 pandemic on the nutritional status of people have begun to surface, the long-term effects are still to be forecasted. The purpose of this review is to bring into light the diverse food and nutrition challenges faced by people in India due to the COVID-19 pandemic and suggest some measures for the road ahead. The literature search included empirical reports, review papers, commentaries, opinion paper, and reports from professional associations as well as government organizations. The results suggest that the measures undertaken to combat the spread of COVID-19 have resulted in the worsening of both undernutrition and overnutrition. Inflation of food prices combined with reduced incomes has resulted in more and more households cutting down on the quantity and quality of the food consumed. The mandate of social distancing adopted has also affected access to critical healthcare services along with supplementary meal programs putting many poor families at added risk of undernutrition. Yet, on the other hand, the burden of overweight/obesity is ensuing because of poor physical activity, chronic stress, increased snacking, and consumption of calorie-dense foods resulting from confined at home. Recognizing the complex nutritional challenges created by the COVID-19 pandemic, the focus of nutrition policy and programs should not only be on achieving short-term relief in arresting malnutrition but providing sustainable long-term solutions. Some suggested measures include encouraging community participation, building resilient local food systems, reforming cereal-biased safety-net programs to include a range of nutritious food groups, resetting agricultural policies for making nutritious foods more affordable along with intensified behavior change communication initiatives for limiting consumption of processed foods and encouraging physical activity.

KEYWORDS : COVID19, food and nutrition security, undernutrition, overweight, obesity, nutritional status, India.

INTRODUCTION:

Malnutrition is still one of the biggest challenges for India. Recent evidence suggests that with a minimal decline in the burden of undernutrition there has been a parallel rise in obesity prevalence among people of all ages. In the Global Nutrition Report 2020, India is listed among the countries which are likely to miss all global nutrition targets by 2025. [1] India ranks 94th out of 107 countries, with a score of 27.2, indicating a level of hunger that is serious according to 2020 The Global Hunger Index.[2] Malnutrition in its all forms is undesirable not only at the individual level but also for the community and country. While on the one end of the spectrum, undernutrition and micronutrient deficiencies increase the morbidity and mortality related to communicable diseases; on the other end, overnutrition and unhealthy diet increase the chance of developing non-communicable diseases.[3,4] Furthermore, low birth weight and undernutrition during early childhood have been found to be associated to increased risk of diabetes and cardiovascular diseases later in life. [5]

There is no dearth of evidence to show that almost every health and development challenge is made worse by malnutrition.[6] The seemingly divergent form of malnutrition *vis-a-vis* undernutrition and obesity is aggravated by food insecurity which is defined as uncertain access to sufficient, safe, and nutritious food. As figure 1 shows [7], the main pathways from food insecurity to malnutrition pass through food consumption comprising of quality, quantity, and continuity of healthy diet, all of which have been threatened by the COVID-19 crisis. In the backdrop of the Covid-19 pandemic, the challenges for a Malnutrition-free India may aggravate or it may even reverse some of the gains made in past in this direction. While the short-term effects of the pandemic on the health and nutritional status of people have begun to surface, the long-term effects are still to be forecasted. The purpose of this review is to bring into light the diverse food and nutrition challenges faced by people in India due to the Covid-19 pandemic and suggest some measures for the road ahead.

Search methodology:

This review includes empirical reports, review papers, commentaries, opinion paper, and reports from professional associations as well as government organizations. The literature search has been carried out by using the key terms 'COVID-19' combined with, 'lockdown', 'food', 'nutrition security', 'healthcare', 'nutritional status', 'National Health Programs', 'India' from Refseek, PubMed and Google Scholar.

Findings:

In India, food and nutrition security among the poor have been limited even in the absence of a crisis with 45-64 percent of the rural poor not been able to afford a nutritious diet that meets India's national food-based dietary guidelines.[8] Nevertheless, the measures taken to combat the spread of COVID-19 has resulted in varying levels of food price inflation at the retail level which combined with reduced incomes, will have potentially lasting impacts on nutrition and health with more and more households cutting down on the quantity and quality of the food consumed. [9] Unmasking the impact of COVID-19, The World Vision International rapid assessment analysis revealed that 51 percent of Indian households are purchasing food of lesser quality, such as broken rice or older produce that has lost some of its nutritional value, that fills the stomach rather than providing proper nutrition. [10]

The mandate of social distancing adopted to contain Corona Virus has impacted access to critical healthcare services, early childhood care, education, and social protection putting many poor families at added risk of malnutrition. This is especially true for the migrants and poor urban populations as well as many poor and other disadvantaged population groups in India. [11] The supplementary meal program under the Integrated Child Development Scheme serving over 100 million pregnant and lactating mothers, and children under the age of 6 has also been disrupted for more than one half of an entire year worsening the already existing undernutrition in these vulnerable groups.[12] Even though front-line workers are going extra mile at this time of crisis to home deliver take-home rations to the beneficiaries, however despite the best efforts, the delivery of service is erratic and observed only in selected districts/states.[13] Similarly, with the closing of schools, themeal that was provided to 144 million children studying in government and government-aided schools under the Mid-Day Mealscheme is also hindered. [12] Thus, this crisis has ended up depriving children of one meal that was provided through government support and increased the burden of one additional meal on their families who themselves are struggling to meet their food requirements. [13] The incidence and magnitude of acute malnutrition among children are bound to worsen as children already suffering from moderate or severe acute malnutrition are being deprived of adequate medical care and supplementary nutrition.[14] Taking into account the high concentration of children around undernutrition in India, the prevalence of underweight and wasting has been predicted to increase

by 1.42 and 1.36 percentage points, which when translated into numbers will account for 410,413 and 392,886 additional cases of underweight and wasted children. [15]

It is ironic yet important to understand how this Novel virus is exacerbating the burden of malnutrition in India. On one hand, undernutrition is rapidly rising with the poor struggling to manage one meal a day and, on the other hand, the burden of overweight and obesity is ensuing because of poor physical activity, increased snacking, and consumption of calorie-dense foods resulting from confined at home. The available evidence supports that during the quarantine, people suffering from obesity experienced immense stress which made them more vulnerable to over-eating and sedentary lifestyles, thus predisposing them to further weight gain. [16] Obesity is a leading risk factor for cardiovascular diseases, diabetes, and renal disease, and has a detrimental effect on lung function. A pro-inflammatory state coupled with malnutrition may lead to an impaired immune response in patients suffering from obesity and increased susceptibility to all influenza viruses including COVID-19. [17,18] Increasing numbers of reports have linked obesity to more severe COVID-19 illness and death through multiple potential mechanisms. [19]

The abrupt cessation of school has also put homebound children and adolescents at an increased risk of weight gain due to decreased physical activity. In addition there has been a huge surge in demand for processed foods like instant noodles, biscuits, and snacks during lockdown and therefore it is likely that many children will be consuming higher calorie diets during the pandemic. [20] Global pieces of evidence affirm that eating, activity, and sleep behaviors of children and adolescents have changed in an unfavorable direction during their confinement due to lockdown. [21] Recent studies from India also indicate similar trends with a decreased physical inactivity by about 48 percent in physiotherapy professionals and students during the lockdown period when compared before the lockdown period. [22] In another observational study conducted in India, carbohydrate consumption and frequency of snacking increased by 21 percent and 23 percent, respectively, exercise duration was reduced in 42 percent of patients and weight gain occurred in 19 percent of patients with type 2 diabetes. [23] A reduction in physical activity coupled with an increase in daily screen time was found especially among men and in upper-socio-economic strata in a study conducted on 995 respondents from India. [24] Depending on the duration of the lockdown, the excess weight gained during childhood and adolescence may not be easily reversible and might contribute to obesity during adulthood if healthier behaviors are not re-established. This is because childhood and adolescent obesity tend to track over time and predict weight status as adults. [25] Long-term physical inactivity may not only result in overweight/ obesity but reduce the immune function of the individuals and can affect the normal physiological system of the body. [26]

Another important upcoming health issue is that of mental health, negatively influencing the nutritional status of the community. An increase in chronic stress, anxiety, depression, alcohol dependence, self-harm, and heightened physical abuse (domestic violence) has been reported as a consequence of the lockdown. [27] Evidence from literature reveals that quarantine and isolation are effective measures to reduce diffusion of infection and to prevent the pandemic, however, these conditions can induce depression, anxiety, anger, and stress. Stress, depression, and anxiety induce people to eat sugar-rich food and drink alcohol to feel better. [28] When individuals respond to stress by eating more, anecdotal evidence suggests the foods selected are typically high in sugar and fat. [29] This desire to consume a specific kind of food is defined as "food craving" which is a multidimensional experience as it includes cognitive, emotional, behavioural, and physiological aspects. [30] Quarantine-related stress also results in sleep disturbances that in turn further worsen the stress and increase food intake thus giving rise to a dangerous vicious cycle. [31]

The Way Forward:

Taking cognizance of the present situation, the government took various significant measures to mitigate the hardships faced by the poor. This includes distribution of food grains and pulses through safety-net program, direct cash transfer through existing government schemes, advance pension payment to elderly, widows, and disabled people, among others. The Government relief measures such as the additional provision of cereal and pulses through the Public Distribution System are commendable initiatives but simply providing

cereal and pulses does not amount to nutrition. These grains might meet the calorie requirement but the impact of the program on meeting dietary diversity and micronutrient requirements is still inadequate especially for pregnant women, lactating mothers, or children. Going forward, it is critical to ensure that the safety-net programs include food from different food groups improving for promoting dietary diversity. One can learn from Udhagamandalam (Ooty), Tamil Nadu where under the aegis of Horticulture Department and the Department of Agri-marketing, vegetable bags which are thoughtfully packed with greens and six to seven essential vegetables like carrots, potatoes, onions, and tomatoes, is being sold at a fixed price at the doorstep of residents in containment zones. [13] From a nutrition-lens, these bags are optimally packed with essential vitamins and minerals.

The lessons learned from this pandemic clearly demonstrate the fragility of the food system globally as well as in India. Our food system should be made resilient so that there is a minimal dependency on any program or schemes for a necessity like food. Every household should be made self-sufficient to meet their own food and nutrition by making the best use of the local and indigenous available foods. Although diverse agro-climatic conditions of India permit to grow more than 60 cultivated and about 30 lesser-known vegetable crops, not much attention has been given to underutilized vegetables known. [32] Similarly, there is ample evidence of enormous varieties of fruits, legumes and other plant crops being underutilized in India. [33,34,35] Previous researches have affirmed that the problem of food security, nutrition, health, income generation, and environmental services can be addressed by proper use of underutilized food crops [36]

An equitable approach for arresting malnutrition must include creating a more powerful and meaningful community engagement. In India, women's self-help groups have provided an excellent example of this approach. Supported under the National Rural Livelihoods Mission co-financed by the World Bank, some 20,000 self-help groups across 27 Indian states were mobilized to meet shortages in masks and sanitizers, provide food and support to vulnerable and high-risk families, provide financial services in rural areas, and disseminate COVID-19 advisories among rural communities. These self-help groups have also set up over 10,000 community kitchens across the country to feed stranded workers, the poor, and the vulnerable. [9]

Recent evidence indicates that amidst the pandemic, neither the poor nor the rich in India are eating well. A risk that governments need to address after the current pandemic is indeed that of tackling and preventing obesity, especially during childhood and adolescence. The focus should also be on creating a healthy food environment by promoting nutrition-sensitive agricultural policies that are more generous towards public health. A healthy food environment would also necessitate increasing the affordability of healthy diets by bringing down the cost of nutritious foods. A study conducted in 176 countries including India suggests that the affordability of nutritious foods may be a more serious constraint than is commonly thought and recommended to improve the affordability of nutrient-rich foods, both economy-wide and for the poorest households. [1] The study further highlighted that green leafy vegetables, vitamin-A-rich fruits and vegetables, and fish were found to be typically quite expensive.

CONCLUSIONS:

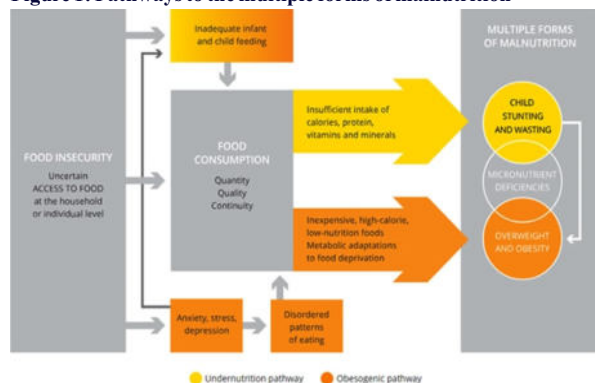
Considering the complex nutritional challenges appended by COVID-19 pandemic to the pre-existing problem of malnutrition in India, a participatory multi-level approach would be required for addressing wide-spread nutrition problems. The focus of nutrition policy and programs should not be only on achieving short-term relief in arresting malnutrition but providing sustainable long-term solutions for improving the nutritional status of the population across all age groups and socio-economic divides. Community participation has emerged as a strong pillar at ground level for coping with food and nutrition insecurity, especially during these challenging times. This potential of a community to find local solutions to the complex food and nutrition problems should be unlocked and their knowledge and experience should be incorporated for designing and implementing policies and interventions. The Government should also work towards building a self-sustainable and resilient local food system. This can be done by mainstreaming neglected and underutilized food crops into the local food system and integrating it with national programs and policies. Communities should be made aware of the nutritional and functional value of these food crops for self-consumption. Training should be imparted in making value-added food products from surplus

production for income generation. Reforms in cereal-biased safety-net programs are also required to include a full range of nutritious food groups which can also go a long in flattening the curve of malnutrition, particularly for the vulnerable groups. It is also critical to re-set-agricultural policies for making nutritious foods more affordable and insulates fresh food supply chains from price rise and shocks. Intensified behavior change communication initiatives for limiting consumption of processed foods and encouraging physical activity especially among children and adolescents should be undertaken for curbing overweight and obesity, especially among children and adolescents. After the present COVID-19 pandemic ends, nothing less than a revolution for ending malnutrition can prevent another crisis.

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Figure 1: Pathways to the multiple forms of malnutrition



Source: FAO 2018: The State of Food Security and Nutrition in the World

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