

## Covid-19 pandemic implications for food and nutrition security in Brazil

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**Abstract** *The emergence of COVID-19 in Brazil further explained the massive discrepancy between different social realities coexisting in the country, rekindling the discussions about food and nutrition security, similarly to what has been happening in other countries facing the same pandemic situation. In this paper, we argue that the risks to hunger and food security in Brazil have been present since 2016 and are now being exacerbated due to the emergence of the COVID-19 epidemic. This situation requires knowing the extent and magnitude of the issue and articulation of measures in the three governmental spheres (federal, municipal and state) to ensure access to adequate and healthy food and reduce the disease's adverse effects on the diet, health, and nutrition among the most vulnerable people. Thus, this work aims to contribute to the debate on the measures to be adopted by governments and society to promote and ensure food and nutrition security and prevent insecurity and the expansion of hunger during and after the social and health crisis created by the pandemic.*

**Key words** COVID-19, Pandemics, Food and nutritional security, Public policy

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## Introduction

After decades of steady decline, the world hunger trend, which is reflected by the prevalence of malnutrition, was reversed in 2015. Over the past three years, rates have remained virtually stable at slightly below 11%<sup>1</sup>. However, the number of people affected by hunger is increasing. As a result, just over 821 million people worldwide, 1 in 9 people, suffered from hunger in 2018<sup>1</sup>. More recent estimates indicate that more than 130 million people can enter this category by the end of 2020<sup>2</sup>. Moreover, the pandemic can lead approximately 49 million people to extreme poverty in 2020<sup>3</sup>, underscoring the immense challenge of reaching the Zero Hunger goal by 2030<sup>1</sup>.

Hunger is increasing in almost all sub-regions of Africa, and the prevalence of malnutrition reached a level of 22.8% in Sub-Saharan Africa and, to a lesser extent, in Latin America and Southeast Asia in 2018<sup>1</sup>. Also, more than two billion people, mainly in low- and middle-income countries, do not have regular access to safe, nutritious, and sufficient food. However, random access is also a challenge for high-income countries, including 8% of North America and Europe<sup>1</sup>.

In Brazil, malnutrition reached up to 5.2 million Brazilians in the 2015-2017 triennium<sup>1</sup>. The rate of fetuses born underweight remained at 8.4%<sup>1</sup>. Besides malnutrition, overweight and obesity are on the rise in all regions, particularly among adolescents and adults<sup>1</sup>. In some of them, they face an epidemic that combines obesity and malnutrition<sup>4</sup>. The low intake of micronutrients such as iron, calcium and vitamins A and D, deficiency diseases known as “hidden hunger” since the studies of Josué de Castro in the 1940s, of the last century, remain significant nutritional problems in the country<sup>5</sup>. This condition has severe implications for health and physical and cognitive development, with direct effects on people’s quality of life; anemia is one of the nutritional problems that pose the most significant health risks, mainly during pregnancy. According to this same report, 27.2% of women of childbearing age in Brazil (14 to 49 years of age) suffered from anemia<sup>1</sup>.

This set of data and information is relevant in this context because, on the one hand, they reveal that the pandemic cannot be held responsible in isolation for the announcing severity in the situation of hunger, malnutrition, and food and nutritional insecurity (FNI) for all. Formerly, the inequalities that were not overcome, the advance

of neoliberal policies, and the dismantling of the system that considered inclusive social policies that promote Food and Nutrition Security (FNS) have been adding to the current situation, which tends to deteriorate due to the impacts of the pandemic. Indeed, light, moderate or severe food insecurity in Brazilian households should tend to exacerbate with the advent of the COVID-19 pandemic. Thus, this paper aims to discuss the repercussions of COVID-19 on the situation of FNS and its interface with social protection policies.

To this end, official documents on decrees and laws related to coping with COVID-19 at the state and federal levels were analyzed. Priority was given to actions geared to generating income and interventions to ensure adequate food. This is a three-section essay. The first section covers the situation of social protection policies, the second refers to the FNS dimensions, and finally, possible strategies are presented to face hunger and walk the path of FNS in Brazil.

### The dismantling of social protection policies in Brazil

Over the past two decades, several public policies have been created for Brazil’s exit from the Hunger Map<sup>6</sup>. One of them is the *Bolsa Família* (“Family Aid”) Program (PBF), a conditional cash transfer (CCT) program<sup>7</sup>. From 2004 and 2014, the program increased expenditure from 0.29% to 0.46% of the annual Gross Domestic Product (GDP) and household coverage from 6.6 million to 14 million<sup>8,9</sup>. The cash transfer component adopted by the program has been responsible for 25% reduction of extreme poverty, and almost 15% reduction of poverty since 2004<sup>10</sup>. Its distribution effect could explain between 1% and 1.5% of the Gini coefficient’s annual reduction in the country<sup>10</sup>.

The prevalence of malnutrition decreased from 11.9% in the period 1999-2001 to less than 2.5% in the period 2008-2010<sup>1,5</sup>. In the period, it also recognizes a set of policies, programs, and actions that, while not having the same coverage as the PBF, were relevant to promoting the reduction of poverty, hunger, and FNI in Brazil<sup>9</sup>. However, social policies with an impact on income, poverty, and the FNS of Brazilians have lost strength since 2016, with the rise of Michel Temer to the Presidency of the Republic<sup>11</sup>.

The National Food and Nutrition Security System was launched in 2006 and dismantled in 2016, mainly due to the reduced level of resourc-

es and coverage of structured programs, such as the income transfer program (*Bolsa Família* Program), the Family Agriculture Food Acquisition Program, Family Farming Incentive Programs, the Water for All Program, and the extinction of the Ministry of Agrarian Development, besides the symbolic act of removing the term Fight Against Hunger from the name of the Ministry of Social Development, among others. Undoubtedly, the approval of constitutional amendment 95, in 2016, which froze public spending for 20 years, strongly integrates this scenario<sup>10,12</sup>.

In this context, the new government, which took office in January 2019, inherited and deteriorated the poor results of social indicators, such as the significant increase in the number of people in extreme poverty<sup>13</sup>. One of the first acts of President Bolsonaro's government was the extinction of the National Council for Food and Nutritional Security (CONSEA), a consultative body of the Presidency of the Republic with significant organized civil society participation, for this very reason, a resonance box of societal demands, strategic equipment in the agenda for the construction of Food and Nutritional Security (FNS) policies.

The economic growth slowdown in the country and the economic fiscal austerity policies adopted by the government have contributed even more to Brazil's dismantling of social policies, whose process affected not only the Unified Health System (SUS) and the Unified Social Assistance System (SUAS) but also the National Food and Nutrition Security System (SISAN), with an exacerbated poverty and social vulnerability situation experienced by many Brazilian households, going against the process of reducing social inequality and income redistribution, experienced in Brazil from 2003 to 2014<sup>12,14</sup>.

In this pandemic, socially vulnerable households and populations may be more vulnerable to COVID-19 due to the social inequality, especially among low-income people – the unemployed and those in the informal sector, who must supplement their income, although enrolled in a temporary cash transfer program<sup>15,16</sup>. Such conditions of vulnerability can be more harmful in communities formed by single-room households sharing personal hygiene materials. Therefore, there is a need to overcome the challenges surrounding effective measures to reduce the incidence of COVID-19.

The declining household purchasing power and elevated food prices in recent years were the main factors that led to necessary food con-

sumption retractions, particularly of nutritionally healthier foods<sup>17,18</sup>, amid aggressive food environments, full of ultra-processed foods (easily accessible and low-cost), thus aggravating the FNI situation among the most vulnerable<sup>19</sup>. In this context, in the pandemic COVID-19, the dismantling of public policies and CONSEA exposes the State's failure to reduce inequalities, tackle food and nutritional insecurity in Brazil, and make the already food-deprived people and households most vulnerable to hunger before the start of this epidemiological scenario.

### **Food and nutrition security: dimensions in the context of the COVID-19 pandemic**

The 2006 Organic Law<sup>20</sup> presents a Food and Nutritional Security concept that consists in realizing the everyone's right to regular and permanent access to quality, sufficient food, without compromising access to other essential needs, based on health-promoting food practices respecting cultural diversity and that are environmentally, culturally, economically and socially sustainable<sup>20</sup>. As of February 2010, food was included among the social rights provided in Article 6 of the Federal Constitution. However, the Human Right to Adequate Food (HRAF) is far from the reality of many people worldwide<sup>12</sup>, and challenges are greater with the COVID-19 pandemic.

In general terms, two well-defined dimensions can be considered to address the pandemic's challenges: food- and nutrition-related. The first refers to the processes of availability (production, sale, and access to food). The second concerns more directly the choice, preparation, and consumption of food and its relationship with health and food's biological use. Each is permeated by the objectives of securing healthy foods, which respect people's food culture and have been produced sustainably<sup>21,22</sup>. Such dimensions were affected by the COVID-19 pandemic (Chart 1).

In the food dimension, the necessary of distancing and social isolation preventive measures adopted by most state and municipal governments, following recommendations from the Ministry of Health and the World Health Organization (WHO) tend to compromise mainly the most vulnerable population concerning the sufficient supply of fresh and minimally processed foods, especially those from family farming. Several farmers saw the sales channels being suspended, either by the temporary closure of

restaurants, or by the stoppage of acquisitions by the National School Food Program (PNAE), or, also, due to the reduced sales (and, in several cases, closure of outlets) in open fairs and markets. Others experience sales hardships (food, products, handicrafts, labor, among others) due to measures that have limited inter-municipal commuting or restricted public transport.

Moreover, for many family farming groups, those who already lived in a situation of poverty or limited socioeconomic conditions, the COVID-19 pandemic may mean an exacerbated social vulnerability. These problems tend to have consequences that shall be measured in the medium and long term, besides the health crisis, due to the breakdown of family agriculture production and sale chains (Chart 1).

Physical and economic access to food must be considered in the food dimension, and the availability of food and income is essential for the acquisition of items that represent the food pattern of households. Social distancing affects the dynamics and socioeconomic status of several Brazilian households, especially the socioeconomically vulnerable ones. In July 2019, 41.3% of Brazilians were employed in the Brazilian informal labor market, that is, more than 38 million, according to calculations by the Brazilian Institute of Geography and Statistics (IBGE)<sup>23</sup>. Besides informality, weaker employment relationships, which were already underway in Brazil due to the economic crisis and policies adopted

in the name of austerity, were exacerbated by the pandemic. Countless activities were interrupted without sufficient support measures for workers who lost their means of subsistence and, thus, access to essential goods and services, including food.

In the nutritional dimension, the poor living conditions, including the lack of access to water and basic sanitation, and fragile health systems (health systems strained and overburdened by the pandemic), when they affect the individual's health status, especially among the most vulnerable, can limit the biological use of nutrients and therefore put them at risk of developing malnutrition (in its different manifestations, in particular, undernutrition and micronutrient deficiencies)<sup>24</sup>. A more recent assessment (2017) of the nutritional status of the beneficiaries of the *Bolsa Família* program points to 12.6% and 5.3% of children under five years of age with growth deficit and acute malnutrition (weight-for-height deficit), respectively<sup>25</sup>. On the other hand, it warns about overweight in this population (13.3%), which can be aggravated, supported by the lack of consumption of healthy and adequate foods (especially deficient in fruits and vegetables, contributing to the inadequacies of micronutrients). A significant increase in the intake of ultra-processed foods is expected due to their price, satiety, and easy access in this health crisis.

Thus, possible consequences of FNI include (directly or indirectly) adverse effects on health

**Chart 1.** Effects of COVID-19 on Food and Nutrition Security in Brazil.

FNS Dimension	Effects of the Covid-19 pandemic
Food availability	<ul style="list-style-type: none"> <li>- Losses in the supply of fresh food from family farming (FF), especially fruits and vegetables;</li> <li>- PNAE stoppage and acquisition of food from FF;</li> <li>- Food processing plants closed due to outbreaks among workers;</li> <li>- Food sales and marketing equipment were closed: open markets and restaurants were shut down;</li> <li>- Limited food transport;</li> </ul>
Access to food	<ul style="list-style-type: none"> <li>- Reduced or suspended income of the most vulnerable - informal workers;</li> <li>- Reduced <i>Bolsa Família</i> (BF) (Family Grant) coverage;</li> </ul>
Consumption	<ul style="list-style-type: none"> <li>- Reduced consumption of fresh foods;</li> <li>- Increased weight gain or eating disorders associated with physical inactivity and social distancing;</li> </ul>
Biological use	<ul style="list-style-type: none"> <li>- Reduced or no access to health services can make children, older adults, and pregnant women more vulnerable to nutritional deficiencies;</li> <li>- People/populations without regular and permanent access to adequate water, sanitation and hygiene are at risk of developing malnutrition, particularly, undernutrition and micronutrient deficiencies.</li> </ul>

Source: Own elaboration.

and quality of life. The situation is aggravated when considering social groups that have not yet experienced a more solid inclusion process in society to be covered by public policies, such as quilombola remnants, indigenous populations, traditional communities such as people of the African religious matrix sacred houses called *terreiros*, semiarid backland pasture farmers and cattle raisers, coconut breakers, shellfish gatherers, artisanal fishermen and people living in the streets, among so many other peoples and groups that underpin the Brazilian society. It is also vital to consider older adults (with difficulties in physical access to food sale outlets), whether at home or institutionalized. Therefore, the emergence and spread of the pandemic caused by the SARS-CoV-2 virus brings exacerbates the accumulating problems concerning the FNS of all, especially the most socially, economically and health-wise vulnerable, signaling for a possible increase in hunger situations.

#### **Strategies to alleviate hunger and follow the path of food and nutrition security**

Emergencies require quick responses. Considering the different FNS dimensions, the initiatives and policies for its guarantee must include articulated actions that consider both its food (availability, production, sale, and access to food) and nutritional (related to food practices and biological use food) components, in order to correct urgent deviations and define a future of greater FNS.

It is important to say, from the outset, that the population in a situation of FNS vulnerability is the same that can only fulfill the social isolation and distancing if they receive income to stay home. This demand was attended by the Congress, which approved the Basic Emergency Income of R\$ 600 per worker, which can reach R\$ 1,200 per household for the public of the Single Registry, informal workers (self-employed or self-employed) and Individual Microentrepreneurs (MEI)<sup>26</sup>. The measure is valid for three months. Unfortunately, logistical issues can compromise and delay the release of funds to those who need the benefit the most.

Concerning wage earners, the level of unemployment has increased, and a portion of workers is laid-off, putting income at risk in the short term, during the pandemic, and in the post-crisis period, when workers will be without prospects. Thus, the impact on food security of a portion of the households will be compromised if strategies

to guarantee employment and income for this group are not built. Moreover, part of the establishments (small and medium-sized businesses, including those linked to food chains) were shut down and depended on measures in order not to go bankrupt, and reopen in the post-pandemic period.

With the COVID-19 combat measures, family farmers are experiencing difficulties in disposing of production and face financial losses<sup>27</sup>. Family farming accounts for most of the production of food for domestic consumption in Brazil. However, it has a significant economic vulnerability, due to different factors such as limited access to equipment that increases labor productivity, distance from cities, production scale, middlemen exploitation, among other mechanisms.

The sale of food, especially in open fairs and markets, may be directly affected by the pandemic, limiting the income of farming and peasant families. Thus, food production should be supported by emergency measures, such as the creation of family farming emergency income insurance, differentiated credit lines, sale support mechanisms, which mitigate any adverse effects on the economic and financial balance of producers. Unfortunately, family farmers are still waiting for emergency measures announced by the federal government to get off the ground and into the countryside. Promises such as investments in the Food Acquisition (PAA) and National School Food (PNAE) programs – for the purchase of products from farmers – and the creation of exclusive credit lines come up against the lack of regulation and conditions for their implementation.

Regarding the sale of family farming products, it is necessary to expand initiatives that allow the delivery of food, especially fresh and healthy food, to people with more significant difficulties in reaching sale outlets, which are especially relevant for older adults and people at risk. In general, geoprocessing resources allow identifying active production and sale sites, by type of food, in such a way that consumers can continue consuming, and producers can produce, sell, and sustain their subsistence. Indeed, a resource like this is useful in emergencies, with businesses and fairs paralyzed. However, it can also be incorporated into the post-pandemic daily life, as are, of course, promoting health measures that increase food security and contribute to sensitizing people on the importance of using hygiene measures to curb the transmission of the SARS-CoV-2 virus and protect workers and consumers.

There is a significant concern with access to food in the crisis. Brazil has experience with programs that address and ensure adequate food consumption for relevant groups. The National School Food Program (PNAE) is one of the primary means of ensuring adequate food for Brazilian schoolchildren during school days, and one of the most important markets for generating a source of income for many family farmers. The closure of schools, a necessary measure to contain the virus spread, imposed this policy's interruption.

Unfortunately, the delay in federal guidance and coordination of the National Education System concerning the PNAE generated significant discrepancy in the initiatives of state and municipal governments, which tried to cushion the impacts of class interruption and the provision of school meals by issuing rules and decrees, to ensure that resources or food reach poor and vulnerable households.

The delivery of staple food baskets has exceeded the direct transfer of income, in the form of card/food vouchers, and depends on local authorities' choice. The agencies that opted for the staple food baskets point to the need for a large purchase to serve the most significant number of people affected by social distancing recommended by local governments. On the other hand, food vouchers/cards are pointed out by those who adopt them as a more agile way to increase income and ensure food security for families that previously relied on school meals for part of the relatives, reducing daily food expenses.

In Resolution N° 2, of April 9, 2020<sup>28</sup>, the Ministry of Education/National Education Development Fund authorizes the distribution of foodstuffs kits acquired under the PNAE to students' families. Providing schools with food produced by small farmers is an efficient way to strengthen family farming and reduce poverty by promoting the fight against hunger. On the other hand, it is vital to keep the offer of adequate and healthy food to the students as much as possible, as recommended by the program rules after years of struggle to reach such a definition. However, once again, the federal government acted despite the federal entities, and the measure was implemented out of step with what was already being implemented by states and municipalities. Listening to the states and municipalities is imperative, since the federal share is the smallest part of the resource in the composition of school meals, and part of the entities does not have stock alternatives and reorganization of products to al-

locate in the model required by the federal rules. This uncoordination prevented the use of part of the resources. The different Brazilian realities require that federal measures take into account the limits and potentials of each community, especially when it comes to food.

Given the need for food for the vulnerable population, despite the dismantling, popular restaurants have organized and set their structures and employees to prepare food and distribute it to vulnerable populations, and therefore were strategic to ensure the delivery of meals to the homeless, poor older adults, and informal workers. Rightly so, some of them were distributing ready meals in disposable trays. The distribution schedule has also been extended to avoid agglomerations in queues.

Other initiatives are being created to provide humanitarian aid to people most affected by the economic and social crisis caused by the COVID-19 pandemic. Non-Governmental Organizations (NGOs), churches, community associations, and anonymous groups have played a fundamental role in combating COVID-19 while being at the forefront, especially in favelas and in territories that public power fails to cover, giving out staple food baskets to those affected by poverty and extreme poverty (e.g., *Ação Cidadania* ["Citizenship Action"], one of the largest and most respected NGOs in the country). Amid the pandemic, the National Supply Company (CON-AB) announced an auction to purchase the food of staple food baskets in support of vulnerable people overly affected by the pandemic. This measure can arrive late in the face of the emergence of the situation<sup>29</sup>.

The COVID-19 burden is increased by overcrowded environments that are unable to follow hygiene recommendations to ensure health quality and food preparation emerge in Brazil. The risks of transmitting SARS-CoV-2 by contaminated food cannot be overlooked if the food has been exposed to an infected people's respiratory secretion. Thus, residents end up being forced to resort to survival strategies that also lead to other risk situations for the proliferation of SARS-CoV-2<sup>30</sup> in communities with insufficient or unsafe water supply services.

Particularly in nutrition-related matters, it is time to share concerns, alert and, perhaps, expand the field of ideas and practices to redirect people towards proper nutrition. Social distancing imposes significant socio-cultural changes, reduced physical activity, and changes in eating habits, significant determinants of nutrition-

al status. Convincing evidence has shown that eating habits are also affected by distress and emotional disorders, in which high levels are associated with poor diet quality<sup>24</sup>. Furthermore, emotions such as fear and sadness are associated with less desire or motivation to eat and less pleasure during meals<sup>24</sup>. Thus, at this moment, it is essential to be creative to set alternatives that respect the Brazilian Food Guide (2014), recommended by the Ministry of Health, and protect people against malnutrition<sup>31</sup>.

In summary, while there is still much to be known about COVID-19, the influence of this pandemic on FNS will require government, private initiative, and the population to take aligned actions to face the situation without disregarding food insecurity in its various dimensions, and recommendations are presented.

### **Final considerations and recommendations**

It is undisputed that Brazil's chronic nutritional problems will only be definitively overcome with structural measures that reorganize food systems to make them healthy, sustainable, stimulating production, generating employment, and boosting development. However, a real picture has been exacerbated by the health crisis and the social distancing measures applied in Brazil, resulting in profound economic impacts on income and employment conditions, and Brazilians can die due to food shortage. Thus, in unveiling this situation, there is an urgent need for solutions that place human life and dignity at the center

of public decisions and policies, safeguarding human rights. In the case of HRAF, it means ensuring that all people, especially the most vulnerable, have access to adequate and healthy food to respond to the "Stay home" outcry.

Thus, the challenge now is to ensure different mechanisms that contribute to securing HRAF, leveraging different food supply strategies. In this context, the strengthening of the PAA (notably the modalities of Direct Procurement and Procurement with Simultaneous Donation) and the continued operationalization of the PNAE (adjusted to the COVID-19 health demands) are some of the measures that can be quickly implemented. Moreover, extraordinary social protection policies, such as the distribution of family farming, obviously adapted to the health care necessary to reduce the risk of spreading SARS-CoV-2 are of paramount importance as a one-off strategy to mitigate the hunger of several Brazilian vulnerable groups.

It is also recommended to include food and nutrition education initiatives (through television, virtual or radio educational programs) that guide and foster the adoption or maintenance of healthy eating habits for the whole family, including the always timely encouragement to exclusive breastfeeding up to 6 months as a safe and essential nutritional practice for children under two years, always considering precautionary health measures. Logically, monitoring of nutritional status must be considered. Finally, the strengthening of the surveillance and monitoring system of the virus spread is reinforced to define aligned strategies for coping with COVID-19.

### **Collaborations**

RC Ribeiro-Silva worked on the text design, data analysis and writing. M Pereira, T Campello, A Ferreira and SMC Santos worked on data analysis and writing the text. And Aragão, JMM Guimarães, ML Barreto worked on the critical review of the work. All authors approved the final version of the manuscript.

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