REVIEW ARTICLE

Food Insecurity During COVID-19: A Neglected Priority?

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ABSTRACT

The COVID-19 pandemic is a public health and global problem threatening the food security and nutrition of millions of people. While considerable public health resources have focused on combating the COVID-19 pandemic, food and nutrition have received less attention. By 2030, Sustainable Development Goal 2 aims to eradicate hunger and ensure that all people, especially the poor and vulnerable, have year-round access to safe, nutritious, and enough food. Regrettably, the world is falling short of its 2030 target of attaining Zero Hunger, mainly due to this pandemic. We reviewed the prevalence of food insecurity during COVID-19 ranging from 23% to 80% and its consequences including the measures presented in the previous studies to address the issue. Food insecurity has many negative consequences during COVID-19, including disruption of food chains, increased food prices, malnutrition and health consequences, growing social inequities, and bad economic outcomes. We highlighted the need for two main strategies: nutrition-sensitive social protection, and food system reform and innovation to address this problem further to build a more robust and resilient food system for the sake of future generations.

Keywords
food insecurity, food security, COVID-19

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INTRODUCTION

The COVID-19 pandemic is a public health and humanitarian crisis that jeopardizes the food security and nutrition of millions of people involving 47.3% of global population.[1] Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. It consist of four dimensions: availability, access, utilization, and stability.[2]

According to the most recent State of Food Security and Nutrition report,[3] prior to the COVID-19 pandemic, almost two billion people experienced moderate or severe food insecurity. However, based on the current projection, between 83 and 132 million additional people would face food insecurity as a direct consequence of the pandemic, including 38-80 million in low-income nations that depend on food imports.[3] In addition, at least 25 countries, including Yemen, South Sudan, and Lebanon, face a severe food security crisis due to the pandemic's secondary socioeconomic effects.[4]

Before COVID-19, food insecurity and hunger were markedly on the rise: the FAO estimates that the number of undernourished populations (including those suffering from chronic and acute hunger) increased from 624 million in 2014 to 688 million in 2019. COVID-19 is expected to have increased the number of people experiencing acute food insecurity significantly between 2020 and 2021. As of April 2021, the World Food Programme (WFP) predicts that 296 million people in the 35 countries where it works lack access to sufficient food, increasing 111 million people from April 2020.[5]

By 2030, Sustainable Development Goal number two targets to end hunger and ensure that all people, particularly the poor and those in vulnerable circumstances, including babies, have year-round access to safe, nutritious, and adequate food. Unfortunately, the world is not on track with its goal of achieving Zero Hunger by 2030. By 2030, if current trends continue, the number of people suffering from hunger will exceed 840 million.[6]

While significant public health resources have been dedicated to combating the COVID-19 epidemic, nutrition has received less attention during the epidemic.[7] Therefore, this review has attempted to identify prevalence and the impacts of the COVID-19 pandemic on food security, in particular at household level.

MATERIALS AND METHODS

We used PubMed, Scopus, and Web of Science search engines for our data collection. The fact that the great majority of journals included in PubMed, Scopus, and Web of Science databases undergo a rigorous professional review process was a factor in the selection of these three search engines from the year of 2019 to 2022. The search keywords used include "food security", "food insecurity", "nutrition insecurity", "COVID-19", and "coronavirus".

RESULTS

COVID-19 is a respiratory infection, and there is no evidence that food is a vector for its spread.[8,9] However, the preventive measures to control its spread, including physical distancing, movement control order, or even total lockdown, caused a significant slowdown in economic activity and disrupted food supply chains that subsequently affect the food systems and population's food and nutrition security.

Prevalence

Few studies have been conducted to assess the prevalence of food insecurity during COVID-19 worldwide. Most of them were conducted online due to physical distancing, movement control order, and lockdown COVID-19 preventive measures.

An online population-level survey involving 3219 respondents conducted between March and April 2020 reported a one-third increase (32.3%) in household food insecurity in the United States. Furthermore, 59.1 % of persistently food-insecure families had very low food security (defined by altered eating habits and decreased consumption), while 40.9 % had poor food security. In addition, 32.3 % of newly food-insecure families had very low food security, while 67.7 % had poor food security.[10] Another study reported that 36.1% of respondents were classified as food insecure.[11] Another study in the United States found that the prevalence of food insecurity was 44%, with 17% low food security and 27% very low food security. This study was conducted using a web-based survey involving 1478 respondents.[12]

In Australia, cross-sectional survey data of 1170 were analysed and revealed that the prevalence of food insecurity was 26%. The adjusted odds of food insecurity were significantly higher for those with disabilities, those who lived in rural areas, and those with dependents.[13] Moving to Middle East countries, a web-based validation questionnaire among 3129 Jordanian households reported that 23.1 % of all participants were classified as severely food insecure, 36.1 % as moderate food insecure, and 40.7 % as food secure.[14] According to the present prevalence of food insecurity, an estimated 9.76 million Malaysians, or 30% of the population, are anticipate to experience food insecurity as a result of the COVID-19 pandemic.[7]

In Africa, smaller size respondents of 442 in Kenya and Uganda revealed that food insecurity rose by 38% and 44% in Kenya and Uganda.[15] Even worse, in East Africa, residents face a "triple menace" of mutually intensifying crises, as persistent heavy rain complicates efforts to prevent locust swarms during the COVID-19 epidemic.[16] Meanwhile, the worst locust epidemic in decades is threatening crops as they approach harvest time.[17] However, a higher prevalence was reported in India, where household food insecurity surged dramatically from 21% in December 2019 to 80% in August 2020, with 62% of families shifting from food secure to food insecure during this period.[18]

In Malaysia, studies conducted during the early surge of COVID-19 are very scarce, particularly due to lockdown order. A study was conducted from April to June 2020 in four states of Peninsular Malaysia namely Selangor, Perak, Kelantan, and Johor involving 535 middles to older aged individuals via telephone interviews showed that the prevalence of food insecurity was 14.8%.[19] A higher

prevalence of overall food insecurity was obtained in an online survey conducted from May 1st to 14th 2020 during home confinement involving 136 respondents where it shows that 43.2% of the respondents was food insecure. The majority (19.8%) are classified as mildly food insecure, while the remainder are classified as moderately food insecure (14.8 %).[20]

Impacts

Food Chain Disruption

Control and mitigation measures for COVID-19 outbreaks are already disrupting global food supply networks. For example, border restrictions and lockdowns delay harvests in various regions globally, displacing millions of seasonal workers and restricting food distribution to markets.[21] Besides, the implementation of physical distancing rules also affecting laborers.[22] Moreover, in several areas, meat processing industries and food markets have been forced to close owing to severe COVID-19 outbreaks among employees.[1] By 2030, an extra 130 million individuals may be added to the ranks of those living in severe poverty. Many of these disadvantaged individuals engage in food production or employment connected to food systems to ensure their food availability.[1]

Because of supply chain disruptions and declining customer demand, farmers have begun burying perishable vegetables and dumping milk.[21] Consequently, many urban residents now have difficulty accessing fresh fruits and vegetables, dairy, meat, and seafood.[1] COVID-19 has imposed shocks on all parts of the global food supply chain, affecting agricultural productivity, food processing, transportation and logistics, and final demand for all food items.[22] In Afghanistan, COVID-19 preventive measures have hampered planting, leaving Afghan farmers unable to sow their crops on time. At the same time, food prices in urban areas continue to rise as food shortages become more critical.[5]

Rising Food Prices

Since January 2020, the average global food prices have increased by 40%. Prices of maize are 66% higher, wheat prices are 23% higher, and cereal prices are 45% more in January 2021 than they were in January 2020, globally.[5] Initially, meat, dairy, sugar, and vegetable oil prices dropped drastically, but cereal grain prices stayed stable. As the pandemic progressed, pricing patterns shifted, with meat prices increasing due to high infection rates among meatpacking employees in certain nations and temporary closures of meat-processing industries to limit disease transmission among worker populations.[23]

In India, a longitudinal community-based study reported that rising food prices were among the challenges during this pandemic.[18] Venezuela and Guyana, for example, had approximately 50% increases in food prices as of late July 2020, while Kenya had just a 2.6 percent increase in food prices.[24] This uneven impact on food prices results from several complex factors, including early export limitations on cereal crops such as rice and wheat imposed by numerous exporting nations. For example, between February and mid-April 2020, rice prices jumped by 32%, 25%, and 10% in Thailand, Vietnam, and the United States, respectively.[23] Food prices have also increased due to interrupted supply chains, which have increased the cost of transport. Along with being labour-intensified, the supply chains for agriculture and food were also being severely impacted by the total lockdown. Worker's mobility constraints, particularly for migrant workers, lead to labour market shocks, and the direct health effects of COVID-19. It also has a direct influence on workers' capacity to grow, harvest, or process food. Depending on the route of transportation, COVID-19 was also having a significant influence on getting food to both local and foreign customers.[24]

Food inflation significantly affects people in low- and middle-income countries since they spend a more significant proportion of their income on food than

individuals in high-income countries.[5] For example, in Malaysia, among the B40 group, the pandemic's effects have a devastating impact on their capacity to purchase nutritious but inexpensive food, especially for families who spend up to 70% of their income on food.[25] Even before the crisis, low-income households were struggling to keep up with rising living costs. For example, between 2014 and 2016, households with monthly incomes of less than RM5,000 were obliged to reduce their food intake while spending more money on it.[26] Another recent research of low-income urban households in Malaysia discovered that the COVID-19 situation had impacted their food expenditures due to lower-income. The majority of them (53%) have reduced their food consumption owing to economic concerns. For instance, many people have switched from animal-based protein to egg-based protein as a cost-effective alternative.[27] Thus, these localized price rises directly impact food security and nutrition by increasing the cost of food, making it more difficult to access, particularly for low-income groups.

Malnutrition and Health

It has been established that food insecurity is associated with malnutrition, with children living in food-insecure households being more likely to be malnourished.[7] The number of stunted children under the age of five has risen to 144 million. That is more than one child in every five globally. At the moment, 47 million children are classified as wasting.[28] As of late May 2020, 368 million school children missed essential nutritional school meals due to school closure.[29] As a result of COVID-19-related school closures, children from low-income families did not receive school meals. One school meal may account for approximately one-third of their daily caloric intake, and for families with several school-aged children, skipping school meals can be burdensome. Consequently, it is essential to ensure that children continue to receive financial assistance for meals when schools are closed.[7]

In Malaysia, stunting was three times more prevalent in children under five than in other upper-middle-income nations. Moreover, the prevalence grew even before the COVID-19 disaster (from 17.7 % in 2015 to 21.8 % in 2019).[30] There is no single cause to explain this increment. Instead, stunting, as a manifestation of maternal and child undernutrition, it results from a complex of household, socioeconomic, cultural, and environmental influences.[31] Apart from stunting, food insecurity has been linked to various kinds of malnutrition, including wasting, obesity, and anaemia. Malaysia's malnutrition rate among children is projected to rise due to increasing poverty and food insecurity and the suspension of school feeding programs as a consequence of the COVID-19 pandemic.[7]

According to the Department of Statistics Malaysia (DOSM), the Household Income Estimates and Incidence of Poverty Report showed the incidence of absolute and hardcore poverty has increased from 5.6% (2019) to 8.4% (2020) and 0.4% (2019) to 1.0% (2020), respectively.[32] A recent study reported, as a direct effect of the pandemic, poor households are likely to shift their expenditures away from fresh fruits and vegetables with high micronutrient content and toward less nutrient-dense staple foods.[23] Many other studies revealed a trend toward the increased intake of processed meals.[33] Each percentage point decline in the global gross domestic product is predicted to result in an extra 0.7 million stunted children.[1] These figures might rapidly increase.

Reduced calorie intake and impaired nutrition jeopardize poverty reduction and health benefits and may have a lasting effect on young children's cognitive development.[5] In addition, food insecurity is related to a variety of adverse health outcomes throughout the lifetime, including poor mental health outcomes such as depression, stress, and anxiety, poor diet quality, increased rates of chronic illnesses such as diabetes and obesity, and decreased overall health status. Food insecurity is also connected with increased healthcare expenses, in part because food-insecure patients face a more significant burden of chronic health disorders and the well-known trade-offs between food and medication.[12]

Widening Social Inequities

The worldwide economic slowdown precipitated by the epidemic and the disease's spread has worsened already-existing social inequities in most countries.[34] These

inequities influence rights and access to basic requirements such as food, water, healthcare, employment, and livelihoods, all of which affect food security and nutrition. Food insecurity already disproportionately impacts those living in poverty and facing societal discrimination. Because of their lower socioeconomic status, this population is more prone to contracting COVID-19 and hence has less resources for medical treatment.[35]

Agriculture is dependent on migrant laborers in many countries, the majority of whom work under informal employment contracts with little rights and are vulnerable to exploitation.[36] As a result, migrant workers commonly endure poverty and food insecurity, and limited access to healthcare and social safety. In addition, COVID-19 infection is more prevalent among migrant employees than in other groups because they are more susceptible to disease due to confined workplaces, transportation, and housing environments.[35,37]

Women represent 43% of the agricultural labour force in developing countries and are believed to account for two-thirds of the world's 600 million poor livestock keepers. In addition, 79% of economically active women in the least developed countries (48 percent of economically active women globally) claim agriculture as their principal source of income.[1] Women are also at risk of an increase in domestic violence as a result of the recession and lockdown measures.[38,39] These inequities disproportionately impact women and their significant roles in food systems, including as prominent players in ensuring family food security and nutrition, as well as food producers, farm managers, food dealers, and wageworkers. According to the FAO, rural women's agricultural activities have been impacted more than men's.[38]

While social protection policies have assisted in ensuring food security, the measures are only temporary. Frequently, children are left out of many social safety programs. Moreover, the pandemic of COVID-19 has exacerbated food and nutrition shortages, resulting in a rise in malnutrition, particularly among children. As a result, child-sensitive social protection policies are critical for closing gaps in present systems and assisting all families in decreasing vulnerabilities, strengthening resilience, and moderating the effects of the COVID-19 crisis.[7]

Economic Impacts

The COVID-19 pandemic triggered a global economic recession, resulting in widespread loss of livelihoods and income.[5] Macroeconomically, Malaysia's Gross Domestic Product (GDP) grew marginally at 0.7% in the first quarter of 2020, the lowest growth rate since the third quarter of 2009, due in part to the response of slowing down to contain the COVID-19 pandemic.[40] It is anticipated that food systems will lose 451 million jobs, or 35% of their formal employment.[23] In the second quarter of 2020, more than 400 million full-time jobs were lost due to many governments adopting lockdown measures.[41] In Malaysia, according to the Department of Statistics, the unemployment rate increased drastically to 3.9 percent in March 2020, affecting a total of 546.6 thousand employees. Additionally, 2.7 million self-employed individuals face job loss.[40] Other than that, in a study conducted in the United States, respondents who lost their jobs had a threefold increased likelihood of living in a family facing food insecurity.[10]

In term of micro economic, the consequent decline in buying power among those who lost income significantly affected food security and nutrition, particularly for existing vulnerable communities.[23] Farmers, pastoralist households, fisherfolk, and traders all experience significant economic losses when milk and dairy products, fruits and vegetables, meat, and fish do not reach wholesale and retail markets. This results in fewer resources available to prepare for the next season's planting, fishing, livestock raising, and slaughter. Additionally, large volumes of food are wasted before it reaches retailers and consumers due to restaurant closures and hoarding by people fearful of losing access to retail stores.[1] As food demand declines due to decreased incomes, the lives of food producers and food system laborers are affected further.

Apart from the immediate consequences for individuals and families, food and nutrition insecurity has been linked to long-term economic impacts such as increased health care costs, decreased educational achievement, lost productivity, lower earnings in adulthood, and an increased risk of poverty later in life.[7]

Strategies at national level

Addressing the COVID issue will involve collaboration across sectors and borders to reduce immediate consequences and transform food systems in ways that promote healthy diets for everyone, and contribute more to aligning food production and consumption with sustainable development.[1] The pandemic demonstrates the interconnected nature of food systems with health systems, economic systems, and environmental systems. As such, policy responses will require coordination across multiple governance systems – including at the international level – to address the crisis's numerous impacts on food security and nutrition.[23]

Nutrition-Sensitive Social Protection

Assistance with food and nutrition should be a core component of social protection programs. Nutrition-sensitive social protection programs with a variety of transfer mechanisms, such as in-kind, cash, or vouchers, as well as public food distribution systems, should be structured to enable access to a variety of balanced and nutritious meals. It will be worthwhile to explore allocating a greater portion of transfers to the lowest 40 percent of the income distribution, who are the most susceptible to food insecurity.[7] For example, in Malaysia, the government has announced RM 1600 one-off payment to 4 million households earning below RM 4000 under the National Caring Aid in March 2020.[42] During the crisis, no contributions, marketing, corporate funding or promotion of unhealthy foods should be sought or received.[7] Social protection programs may help protect food availability by enhancing purchasing power for people in need or by distributing food directly via government or community-based programs. Food assistance provided by public distribution networks should provide a variety of balanced, nutritious meals.[1]

Income aid, food vouchers, tenant eviction protections, housing assistance, and school meal programs have all been shown to be effective forms of help in certain socioeconomic circumstances.[23] Vouchers for food purchases should be accepted in formal and informal markets and cover the cost of adequate fruit and vegetables. In addition, governments must think creatively about providing alternatives to school meals when schools are forced to close for long periods due to COVID-19.[43] Alternatively, food packages for pickup or delivery, or voucher programs, may be used to guarantee that children eligible for benefits-related free school meals continue to receive them.[7]

Food Systems Transformation and Innovation

To make healthy diets more affordable, the cost of nutritious foods must be reduced. Cost drivers for these diets may be found across the food supply chain, the food environment, and the political economy that determines trade, public spending, and investment policies. Addressing these cost drivers would involve significant transformation to food systems, with no one-size-fits-all solution and country-specific trade-offs and synergies. As a result, countries agricultural approaches and incentives will need to be rebalanced in favour of more nutrition-sensitive investment and policy actions across the food supply chain in order to decrease food losses and increase efficiency at all levels.[3]

Due to the risks posed by COVID-19 to in-person training in the current context, such efforts would require masks and physical separation. Still, they could be aided in some cases by digital communication technologies, provided they are centred on the needs of poor farmers and the data is openly accessible. Additionally, home gardens and urban agriculture may be more robust to shocks and disturbances, ensuring that the urban poor can access a more diverse and healthy diet.[44]

In Kenya, the World Bank is leveraging digital technologies through ongoing partnerships with 15 agricultural technology start-ups to transform the delivery of inputs, soil testing, crop insurance, credit, extension advice, and market linkages, enabling farmers to overcome

temporary COVID-related constraints and ensure more effective service delivery, particularly in remote areas.[5] This might be enhanced further if the humanitarian and development communities collaborated to address gaps in current data collecting systems, identify missing data and analytic standards, and engage with nations with little data or persistent divergences in their interpretation.[1]

CONCLUSION

The COVID-19 crisis threatens millions of people's food security and nutrition, many of whom were already in need. A worldwide food emergency of massive proportions is looming. In the longer term, we may see disruptions in the functioning of food systems, which might have a negative impact on health and nutrition. We can not only prevent some of the worst effects via coordinated action but also accelerate the transition to more sustainable food systems that are more in balance with nature and promote nutritious diets – and consequently improved health prospects – for everyone. The COVID-19 pandemic is a big threat to food insecurity, thus fundamental social protection system improvements to reduce child and family poverty should be the top policy priority. Malaysia has strong social protection programmes, yet nutrition is neglected. Social protection systems must include food and nutrition-sensitive programmes to preserve food availability and improve nutrition during a health crisis.

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