

COMMENTARY ON COVID-19 AND THE FOOD SYSTEM

Providing planetary health diet meals to low-income families in Baltimore City during the COVID-19 pandemic

JAFSCD
Responds to
the COVID-19
Pandemic



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Abstract

The COVID-19 pandemic has increased food insecurity, especially among low-income Black and Hispanic families in the United States. Food insecurity is associated with poorer health and higher mortality

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in adults and greater risk of impaired cognitive development and behavioral problems in children. Providing food for low-income families is an important priority of the COVID-19 response. *Food That Connects Us All* is a program that provides healthy meals to low-income Black and Hispanic families in Baltimore City. The meals follow guidelines for the planetary health diet, a reference diet developed by the EAT-Lancet Commission to optimize health and be sustainable within planetary boundaries. The planetary health diet consists largely of vegetables, fruit, whole grains, legumes, nuts, and unsaturated oils, with a low to moderate amount of seafood and poultry and with little or no red or processed meats, refined grains, starchy vegetables, and added sugar. In a food survey, participants showed a high level of satisfaction with the taste, appearance, and healthfulness of the meals. *Food That Connects Us All* is a direct approach to reducing health disparities and demonstrates the feasibility of providing an ideal reference diet to vulnerable low-income families at high risk for poor health outcomes during the pandemic.

Keywords

COVID-19, EAT-Lancet, Food Insecurity, Planetary Health Diet, Minority Health, Sustainability

Food Insecurity and COVID-19

Food insecurity, defined as the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways (Holben & Marshall, 2017), affected 11.1% of households in the U.S. prior to the COVID-19 pandemic (U.S. Department of Agriculture Economic Research Service [USDA ERS], 2020). In 2018, 13.9% of households with children under age 18 years were food insecure (USDA ERS, 2020). Blacks and Hispanics are at a relatively higher risk of food insecurity (Hernandez, Reesor, & Murillo, 2017). Poverty, unemployment, and the high cost of food are closely tied to household food insecurity (Huang, Kim, & Birkenmaier, 2016). Food insecurity is associated with poor dietary quality, particularly a low intake of fruit, vegetables, and dairy products (Hanson & Connor, 2014).

Adults affected by food insecurity have a higher risk of obesity, chronic diseases, and mortality (Brown et al., 2019; Cook et al., 2004; Seligman, Laraia, & Kushel, 2010; Walker et al., 2019). Children are particularly affected by food insecurity; children from food-insecure households have higher morbidity (Cook et al., 2004; Ryu & Bartfeld, 2012) and increased risk of impaired cognitive development and behavioral problems (Alaimo, Olson, & Frongillo, 2001; Whitaker, Phillips, & Orzol, 2006). In addition, their mothers are at higher risk of depression and anxiety (Whitaker et al., 2006). Programs to address food insecurity in the U.S. include the Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), food banks, and community food programs (Loopstra, 2018). SNAP reached approximately 37 million people during the period of October 2019 to February 2020 (USDA Food & Nutrition Service, 2020a). There were 6.4 million participants in WIC in 2019 (USDA Food & Nutrition Service, 2020b). Under normal circumstances, the USDA National School Lunch Program, School Breakfast Program, and Children and Adult Care Food Program serve nearly 35 million children daily (USDA Economic Research Service, n.d.).

The COVID-19 pandemic has disrupted food supply chains and food access, caused massive job losses, especially among Blacks and Hispanics (Montenovo et al., 2020; U.S. Department of Labor, 2020) and has greatly exacerbated food insecurity (Niles et al., 2020). With the interruption of food programs and increases in food insecurity, feeding adults and children from low-income families has become an important priority of the COVID-19 response (Dunn, Kenney, Fleischhacker, & Bleich, 2020). Federal nutrition programs have been given greater flexibility on the state level to deal with the evolving situation. The U.S. Congress' Families First Coronavirus Act (FFCA) included provisions to expand federal assistance to US\$114 per child per month and increase SNAP allotments up to the maximum benefit

amount, but many households with children are already at the maximum amount (Kinsey, Kinsey, & Rundle, 2020). Given the lack of federal guidelines, an uneven patchwork of support has emerged across the country, causing concerns that COVID-19 will exacerbate existing health disparities and have profound lasting negative impacts (Kinsey et al., 2020).

The Planetary Health Diet

In 2019, the EAT-Lancet Commission proposed an ideal diet known as the ‘planetary health diet’ (EAT-Lancet, 2020; Willett et al., 2019). The diet is based on the best nutritional evidence available for optimizing health (defined by the World Health Organization as a state of complete physical, mental, and social well-being, and not just absence of disease [Preamble to the Constitution of WHO, 1948]) without surpassing planetary boundaries. The planetary health diet is a universal healthy reference diet that consists largely of vegetables, fruit, whole grains, legumes, nuts, and unsaturated oils, with a low to moderate amount of seafood and poultry and with little or no red or processed meats, added sugar, refined grains, and starchy vegetables (Table 1). The diet is sustainable within planetary boundaries for six environmental processes that include climate change, land-system change, freshwater use, biodiversity loss, and interference with the global nitrogen and phosphorus cycles (Willett et al., 2019).

Table 1. Composition of the Planetary Health Diet for an Intake of 2500 kcal/day

Food group	Foods	g/day	kcal/day
Whole grains ^a	rice, wheat, corn, other	232	811
Tubers or starchy vegetables	potatoes, cassava	50	39
Vegetables	dark green vegetables	100	23
	red and orange vegetables	100	30
	other vegetables	100	25
Fruits	all fruit	200	126
Dairy foods	whole milk or equivalents	250	153
Animal source proteins ^b	beef, lamb	7	15
	pork	7	15
	chicken, other poultry	29	62
	eggs	13	19
	seafood ^c	28	40
Plant source proteins ^{a, d}	dry beans, lentils, peas	50	172
	soy foods	25	112
	peanuts	25	142
	tree nuts	25	149
Added fats	unsaturated oils ^e	40	354
	palm oil	6.8	60
	lard or tallow	5	36
Added sugars	all sweeteners	31	120

^a Wheat, rice, dry beans, and lentils are dry, raw. ^b Beef and lamb are exchangeable with pork and vice versa. Chicken and other poultry is exchangeable with eggs, fish, or plant protein sources. ^c Seafood consists of fish and shellfish. ^d Legumes, peanuts, tree nuts, seeds, and soy are interchangeable. ^e Unsaturated oils are 20% each of olive, soybean, rapeseed, sunflower, and peanut oil.
 Source: Willett et al., 2019.

Description of the Model Program

A program known as *Food That Connects Us All* has served more than 50,000 meals in Baltimore City, Maryland, since the beginning of the COVID-19 pandemic. *Food That Connects Us All* was founded in mid-March 2020 by Alkimiah, a collaboration between the catering business Mera Kitchen Collective and the restaurant Alma Cocina Latina. It was created to address food insecurity in response to the pandemic. Alkimiah has received funding and support from the World Central Kitchen, founded by Chef José Andrés. Fresh fruit and vegetables, dairy products, and chicken are sourced from local organic farms, as much as possible, or received as donations of excess fresh produce from farms in Maryland and Pennsylvania. Fish and meat are obtained from local purveyors. The coordinating chef plans the menu daily with five cooks in the kitchen of Alkimiah. The founding principles of *Food That Connects Us All* include providing healthy, sustainable diets to people in need. The meals generally follow guidelines for the planetary health diet (Table 1) (EAT-Lancet, 2020; Willett et al., 2019). Examples of meals include (1) salmon cakes with mixed seasonal vegetables, Israeli couscous, and creamy pesto sauce; (2) chicken salad with red peppers, green beans, mixed greens, caramelized onions, dried figs, quinoa, and fresh basil; (3) ground turkey chili with red kidney beans, polenta, local sweet corn, Latin coleslaw, and cilantro. The staff prepare approximately 500 meals per day in the early morning, and the meal boxes are distributed in the afternoon by distribution center volunteers. Food workers are paid a minimum of US\$16/hour in the project. The food distribution has included over 15 schools, community centers, and senior homes in Baltimore City, Monday through Saturday, 1:00 to 4:00 PM. Some meals are delivered by volunteers directly to families that are unable to come to the distribution centers. Since the distribution of meals is community-based, most recipients walk a short distance to the distribution centers. This program supports primarily low-income Hispanic families in areas of Baltimore City that are high-priority food areas (sometimes known as food deserts) (Franco, Diez Roux, Glass, Caballero, & Brancati, 2008).

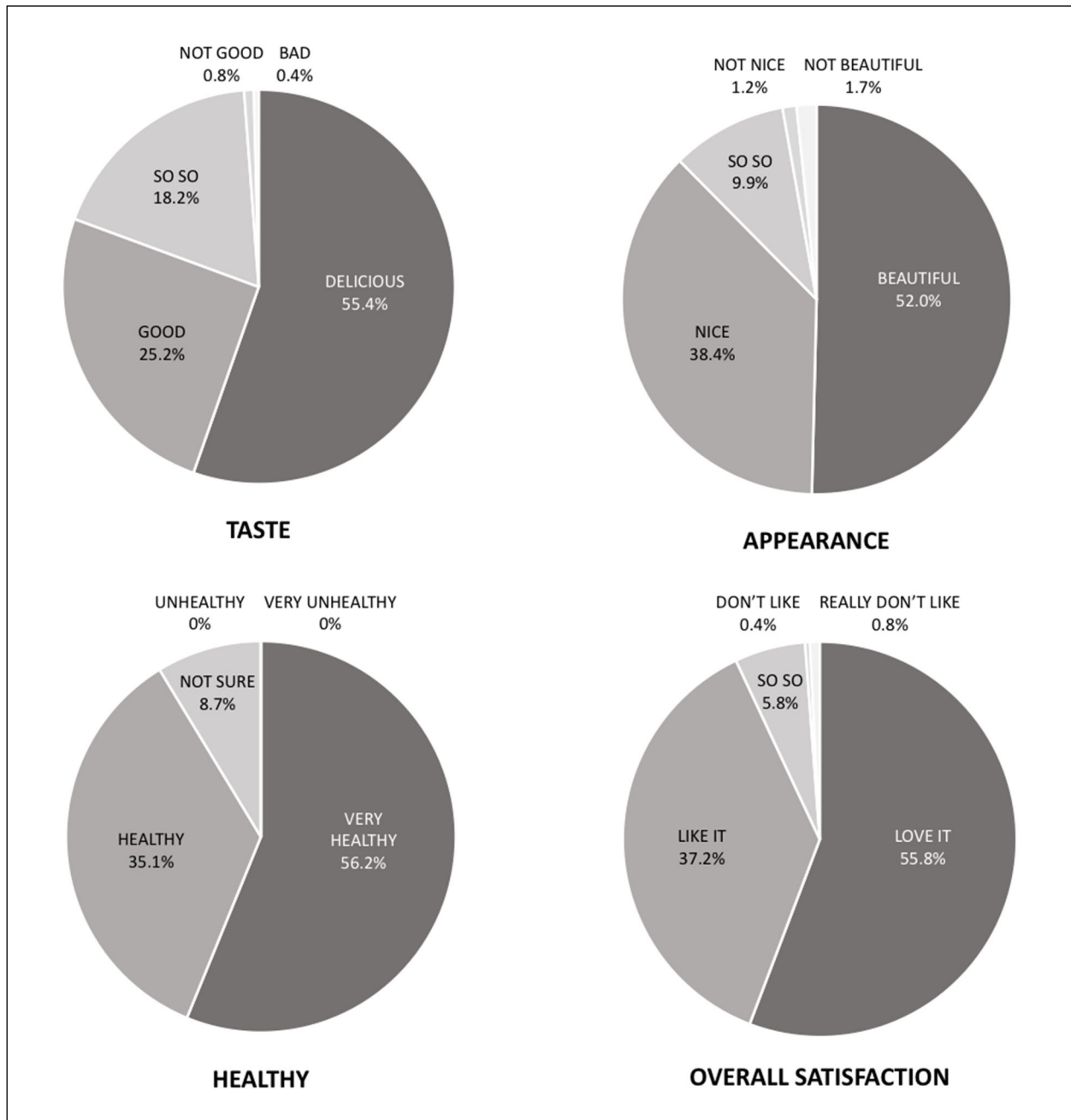
In order to evaluate the recipients' satisfaction with the meals provided by *Food That Connects Us All*, a survey was conducted consisting of six questions: (1) How do you like the taste of the food? Delicious/good/so so/not good/bad; (2) How do like the appearance of the food? Beautiful/nice/so so/not nice/not beautiful; (3) How healthy is the food? Very healthy/healthy/not sure/unhealthy/very unhealthy; (4) What is your overall satisfaction with the food? Love it/like it/so so/don't like/really don't like; (5) Would you recommend this food to a friend? Yes/no; (6) What would you change about the meal? Check any: Nothing/bigger portions/more vegetables/more variety. The survey was given in both English and Spanish. Of the approximately 500 people who regularly receive their meal boxes, 242 completed the survey in the period of August 17–24, for a response rate of 48.4%. The results of the first four questions are shown in Figure 1. The responses were highly positive, such as 55.4% for delicious taste, 52.0% for beautiful appearance, 56.2% for very healthy, and for overall satisfaction, 55.8% love it. When asked "Would you recommend this food to a friend?" 96.2% responded yes and 3.8% responded no. When asked about changing anything about the meal, 36.8% would not change anything, 32.2% wanted bigger portions, 14.4% wanted more vegetables, and 9.0% wanted more variety.

Addressing Food Insecurity

The COVID-19 pandemic may increase health disparities among low-income minority families due to loss of livelihood and exacerbation of food insecurity (Kinsey et al., 2020). To our knowledge, *Food That Connects Us All* is a novel community program providing meals consistent with the planetary health diet to low-income families. This program attempts to overcome some of the limitations of other food assistance programs.

The largest program addressing food insecurity in the U.S. is SNAP, which cost US\$60.3 billion in

Figure 1. Responses of 242 Participants in *Food That Connects Us All* to Four Questions in a Food Survey



2019 (Duffin, 2020). Retailers can accept SNAP funds for essentially any food product, including candy, chips, sodas, doughnuts, and other convenience foods; analyses from the National Health and Nutrition Examination Survey show that participants were likely to make food choices that have relatively poor dietary quality (Leung et al., 2012a). Among children 2 to 17 years old, SNAP recipients were more likely to consume sugar-sweetened beverages and to be overweight or obese compared to those who did not receive SNAP benefits (Twarog et al., 2020). SNAP participants have a higher consumption of sugar-sweetened beverages compared to some SNAP-eligible nonparticipants (Nguyen & Powell, 2015). SNAP

has been implicated in increasing both diet and health disparities (Fang Zhang et al., 2018). SNAP participants are at higher risk of hypertension, cardiovascular disease, diabetes, and have higher risk of all cause, cardiovascular, and diabetes mortality compared with other American adults (Conrad, Rehm, Wilde, & Mozaffarian, 2017; Leung, Willett, & Ding, 2012b; Nguyen, Shuval, Bertmann, & Yaroch, 2015). In order to increase access to staple foods in high-priority food areas, SNAP was updated with standards to increase the “depth of stock” of healthier foods. In Baltimore City, however, the barriers to providing better foods in food deserts have included low customer demand and the potential for food spoilage (Ross, Krishnan, Ruggiero, Kerrigan, & Gittelsohn, 2018).

Food banks, which were traditionally established to alleviate hunger, are another source of food for low-income families. Many food banks have difficulties providing fresh fruit and vegetables, and not all leaders of food banks consider their organizations to be agents for change to promote health and reduce chronic disease (Wetherill, White, & Seligman, 2019). Many food banks do not want to turn down food, even though it may not be considered healthy (Wetherill et al., 2019). Other challenges with food banks include limited hours and the availability of mostly poor-quality foods (Bryan et al., 2019; Ginsburg et al., 2019).

A strength of *Food That Connects Us All* is an innovative application of the planetary health diet in a vulnerable population at high risk for obesity (Flórez et al., 2019), diabetes (Aguayo-Mazzucato et al., 2019), and cardiovascular disease (Graham, 2015). The planetary health diet was formulated—based upon the strongest scientific evidence—as the reference diet for promoting health and longevity and staying within planetary boundaries (EAT-Lancet, 2020; Willett et al., 2019). The program in Baltimore shows the feasibility of applying this healthy reference diet in an urban setting. The responses to the survey showed a high rate of satisfaction with the food by the participants. According to one of the program directors, initially the meals were somewhat of a shock to some of the participants, who were accustomed to eating beef, pork, and highly processed foods and snacks (Irena Stein, personal communication, August 21, 2020). However, the participants expressed overall satisfaction with the meals.

The program provides meals on a daily basis, which allows for inclusion of fresh vegetables and fruit that have a limited shelf life. The program offered a reasonable working wage to cooks and personnel and supports locally sourced foods. The planetary health diet is sustainable for the planet; if the diet were adopted worldwide, there would be an estimated 23% reduction in agricultural global greenhouse gas emissions (Semba et al., 2020).

As noted above, meals are provided daily by the program. A more convenient alternative may be to supply a week’s worth of food in one pickup; however, prepared fresh salads, fruit, vegetables, and dairy products may lose quality and appeal after storage in a refrigerator beyond a day or two. Nuts are not included in the meals because of concerns about nut allergies among the participants. The meals are relatively expensive, as the total cost of one meal, including food costs, food preparation, transport, and delivery, is US\$10.00/meal, compared with US\$1.40/meal provided by support from SNAP (Center for Budget and Policy Priorities, 2019). The long-term impact of these healthy meals on recipients’ health outcomes is not known because the program was just recently initiated. The formulation of the planetary health diet is based on what is considered to be an ideal healthy reference diet that reduces risk of heart disease, diabetes, obesity, cancer, and mortality (EAT-Lancet, 2020; Willett et al., 2019). There may be long-term benefits in providing healthy food to high-risk, low-income families, such as reducing chronic diseases and the related health care costs (Jardim et al., 2019). *Food That Connects Us All* demonstrates the feasibility of providing an ideal reference diet during the COVID-19 pandemic to vulnerable, low-income families who have a high risk for poor health outcomes.

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