

Consumption and Responsibility: Sustainability of Brazilian Food Choices during the Covid-19 pandemic

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Abstract

The aim of this study was to evaluate the criteria of choice in the purchase of food products, relating consumption and sustainability during the pandemic of Covid-19 in Brazil. The survey was carried out online from April to June 2021, with questions about socioeconomic data and consumption profile. A total of 395 individuals participated in the survey, with a predominance of females, with monthly income above one Brazilian minimum wage. Of those individuals, 80.25% pointed out changes in their eating habits, 51.14% felt difficulty in buying food, and 91.14% increased their food expenses. A total of 73.16% have full or partial responsibility for household purchases and 19.75% were consuming more ultra-processed foods. Among the criteria that stood out the most when purchasing products were shelf life (76.34%), taste (74.81%) and fair price (70.48%). In contrast, buying national meat (17.81%) and other products produced in Brazil (22.39%) were considered unimportant. For product quality characteristics, 54.96% considered whether the food is healthy, 48.09% the presence of certain ingredients and 63.1% freshness. Criteria related to price and sensory characteristics were considered more important than aspects related to environmental and social responsibility.

1. Introduction

The concepts of sustainability and sustainable consumption have been widely discussed in academia and in political debates that consider the impacts caused by consumption. Sustainability was first discussed in 1972, at the United Nations Conference on the Human Environment, known as the Stockholm Conference, the first to discuss the environment (Guimarães and Fontoura 2012).

Food systems have reached high levels of food production, and as consequence, the health of the population and the environment are impacted. All over the world, problems related to food systems, such as nutritional, socio-economic, environmental, and Chronic Noncommunicable Diseases (CNDs) are becoming more and more apparent. Food systems are therefore directly related to sustainability, and food systems in their traditional format have come to be considered unsustainable (Triches 2021).

Brazil, as one of the most densely populated and productive countries in terms of agriculture, is responsible for large greenhouse gas emissions, water use, and land occupation while considering the extent of food processing. The environmental effects of food purchases have increased in Brazil due to changing dietary patterns in the period between 1987 and 2018. Increased consumption of processed and ultra-processed foods,

and decreased consumption of fresh and minimally processed foods were identified (da Silva et al. 2021).

In the last decades, Brazil has undergone changes in the political, economic, social and cultural spheres, which have emphasized modifications in the population's way of life, and therefore food and eating have undergone transformations (Brasil 2014).

The Food Guide for the Brazilian Population, elaborated by the Ministry of Health, promotes adequate and healthy eating. Such guidelines aim to ensure the health and proper nutrition of the population (Brasil 2014). In Brazil, food is a social right, according to the Article 6 of the Federal Constitution, and Food and Nutrition Security is established through the Organic Law of Food and Nutrition Security (LOSAN) as "the guarantee of the right of all individuals to regular and permanent access to quality food, in sufficient quantity, without compromising access to other essential needs, with health-promoting food practices that respect cultural diversity and that are environmentally, economically and socially sustainable" (Brasil 2010; 2006).

In Brazil, which recently returned to the level of the Hunger Map, the impact was greater in the social, economic and food areas, as the scenario worsened hunger, unemployment, and poverty of the population and, consequently, food and nutrition insecurity. More than ever, the Sustainable Development Goals face challenges, as the world has never been more unequal, hunger affects millions of people, and health faces challenges to reach as many people as possible (Rede PENSSAN 2022).

Food choices in Brazil are influenced by the existing inequalities in the country, which lead Brazilians to consume a growing number of foods that can cause nutritional imbalances and health problems. Fresh or minimally processed foods, which are part of a healthy diet, as recommended by the Food Guide for the Brazilian Population, can also be part of a sustainable and balanced lifestyle, which should be guaranteed for all Brazilians, in accordance with Sustainable Development Goal 2 (Brasil 2014).

Therefore, the aim of this study was to evaluate the criteria of choice in the purchase of food, relating consumption and sustainability during the Covid-19 pandemic in Brazil, to analyze the sustainability of food choice of Brazilians during the pandemic, and to discuss the need for public policies for the Human Right to Adequate Food – HRtAF.

2. Materials and Methods

The survey was approved by the Research Ethics Committee of the Federal University of the State of Rio de Janeiro, under number 30994920.6.0000.5285, conducted online from April to June 2021, and designed with questions about socioeconomic data and criteria profile of sustainable choices in the purchase and consumption of food, during the pandemic. A total of 395 individuals participated in the survey people of both genders aged 18 years or older and, residents in Brazil.

The data were collected through the Google Forms platform, and, to evaluate the sustainability of choices, questionnaire with closed questions using a Likert scale of 5 points (Apostolidis and McLeay 2019; Kusch and Fiebelkorn 2019; Truninger et al. 2020) and tabulated in Excel® program was utilized.

3. Results

Table 1 shows the socioeconomic and consumption data during the Covid-19 pandemic in Brazil. The study was characterized by the participation of a larger number of females (79.75%), from the southeastern region of the country (89.87%), aged between 18 and 29 years (51.90%). Regarding family income, 87.37% reported being higher than US\$ 221.00 (minimum wage in Brazil at the time of the survey), and as for the level of education, at least 39.24% had completed high school, and about 45% had a college degree. Most individuals identified changes in their eating habits (80.25%), 51.14% felt difficulty in buying

food due to price increases, and 91.41% of individuals had increased expenses on food. Of the respondents, 73.16% have full or partial responsibility for household purchases. It is a warning to public health that 19.75% of respondents were consuming more ultra-processed foods.

Table 1. Socio-economic characterization and consumption during the Covid-19 pandemic (N = 395)

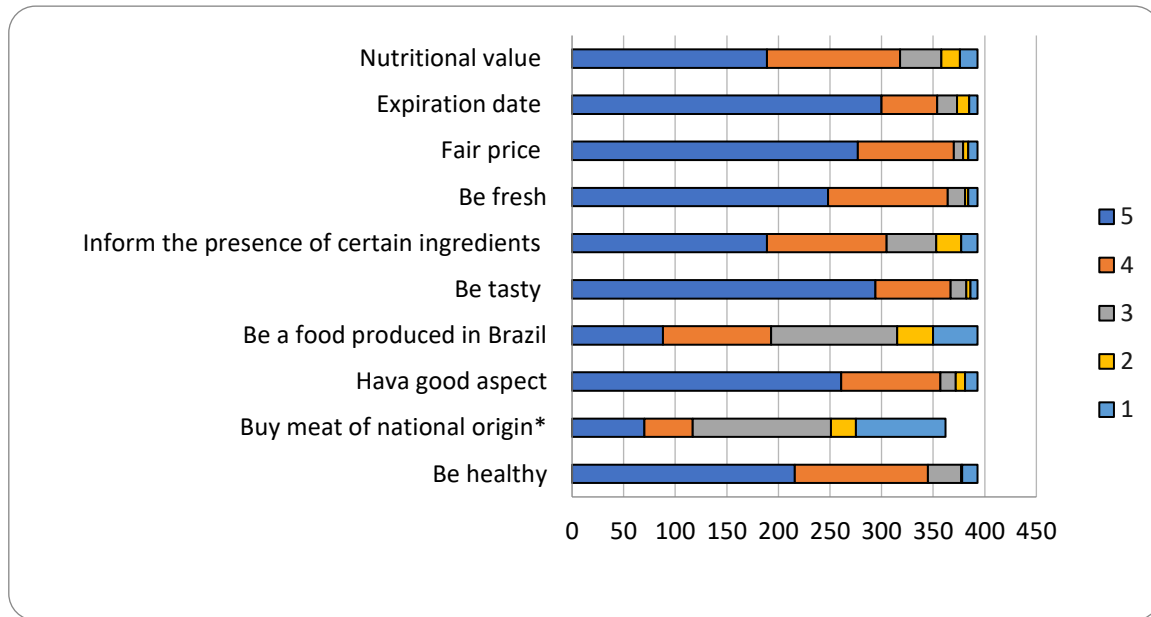
Question	Answer	N	%
Gender	Female	315	79.75
	Male	77	19.49
	Undeclared	3	0.76
Region	Southeast	355	89.87
	South	8	2.03
	Center	8	2.03
	Northeast	10	2.53
	North	14	3.54
Education	Primary School	4	1.01
	Secondary School	155	39.24
	Higher Education	72	18.23
	Specialization	65	16.46
	Doctorate	41	10.38
	Undeclared	58	14.68
Family income	≥ U\$ 221.00	345	87.34
	< U\$ 221.00	50	12.66
Age	18 to 29	205	51.90
	30 to 39	112	28.35
	40 to 49	31	7.85
	50 to 65	41	10.38
	≥ 66	6	1.52
Change of food habits	Yes	317	80.25
	No	78	19.75
Difficulty in food purchasing	Yes	202	51.14
	No	192	48.86
Expenses with food	Increased	360	91.14
	Decreased	11	2.78
	Not applicable	24	6.08
Increased consumption of processed foods	Yes	78	19.75
	No	317	80.25
Total		395	100.00

Authors, 2022

Chart 1 shows the sustainability criteria in the purchase and consumption of food during the Covid-19 pandemic in Brazil. The criteria highlighted by Brazilians were shelf life (76.34%), taste (74.81%) and fair price (70.48%). In contrast, the purchase of national meat

(17.81%) and other products produced in Brazil (22.39%) were considered unimportant. For product quality characteristics, 54.96% considered whether the food is healthy, 48.09% the presence of certain ingredients and 63.1% freshness.

Chart 1. Importance of sustainability criteria in choosing, purchasing, and consuming food during the Covid-19 pandemic (N = 395)



Caption: 1 (not important); 2 (not very important); 3 (indifferent); 4 (moderately important); 5 (very important) *n=362. Authors, 2022

4. Discussion

The Covid-19 pandemic has had a profound impact on the global population, causing enormous damage to public health and to social and economic issues. In Brazil, the social and economic problems were not directly caused by the new Coronavirus but were aggravated by it (Matheus 2021).

The origin of the pandemic brought the hypothesis that the new virus has migrated from a wild environment to the urban environment, leading to ecological imbalance, increasing the discussion about the urgent need to control the levels of consumption and production and, consequently, the conscious use of natural resources Lima, Alencar and Fonseca (2022). In Brazil, especially in the State of Rio de Janeiro, an environmental, health and humanitarian crisis is becoming evident due to the water supply crisis in the region (Lima et al. 2022).

Thus, the concept of sustainability has gained prominence on the world stage with the Covid-19 pandemic. It is known that the definition of sustainability is under constant construction; it started from the environmental, economic, and social dimensional tripod, however, Freitas (2012) highlights two further dimensions: the legal-political and the ethical. These dimensions are directly related and essential for shaping development (Matheus 2021).

The conscious use of natural resources is directly related to food choices that have important interactions with agricultural, environmental and health systems (Auestad et al. 2015).

The report of the High-Level Panel of Experts on Food Security and Nutrition (2017) emphasizes that all actors have responsibilities in sustainability, as all decisions at any stage

of a food chain have implications for the other stages and significantly influence supply and marketing policies, and therefore the ways in which food is produced and consumed.

The criteria for sustainable choices deserve emphasis and should have low environmental impact and contribute to Food and Nutrition Security and healthy living for present and future generations (Triches 2020). Thus, recommendations and initiatives, both governmental and non-governmental, recognize that sustainable food purchases should prioritize the acquisition of organic, locally produced, and seasonal foods. In relation to animal production and consumption, animal well-being during rearing should be prioritized (EAT lancet commission 2019).

During the pandemic among the population studied, an important criterion when choosing a product was its shelf life (76.3%), especially due to the social isolation and uncertainties of the moment. That ended up increasing the consumption of ultra-processed foods. Their consumption is related to the risks of obesity and Chronic Noncommunicable Diseases (CNDs). Analyses show that in countries where there is a high consumption of processed and ultra-processed foods, obesity levels are higher. It is known that the different forms of malnutrition can lead to the development of Chronic Noncommunicable Diseases. Malnutrition can occur due to lack of food and consumption of foods harmful to health with low nutritional value (da Silva et al. 2021).

In addition to the uncertainties of the pandemic, the increased price of products directly interfered with the purchase of ultra-processed products, which in general are cheaper and more accessible in Brazilian markets. Therefore, the fair price is a criterion of choice when purchasing products in Brazil, especially given the economic crisis that was increased with the Covid-19 pandemic.

Nevertheless, research developed by the Brazilian Network of Research on Food Sovereignty and Security showed that food insecurity has become even more present among Brazilian families. The number of households with starving residents jumped from 9% to 15.5% (33.1 million people). There are 14 million new hungry Brazilians. The dismantling of public policies, the worsening economic crisis, the increase in social inequalities and the second year of the Covid-19 pandemic kept more than half (58.7%) of the Brazilian population in food insecurity, at various levels of severity (Rede PENSSAN 2022).

The increase of the consumption of processed and ultra-processed foods during the Covid-19 pandemic does not follow what is recommended by the Food Guide for the Brazilian Population currently in use, as well as in other researches such as Lacaz and Tabai (2021). Authors such as Monteiro et al. (2021), highlight that in countries where there is a high rate of consumption of processed and ultra-processed foods, obesity levels are higher.

As for the consumption of meat by non-vegetarian Brazilians during the pandemic, culturally speaking, animal protein or "mixture", a term often used by Brazilians, is one of the items considered essential in everyday meals (APBPA 2021). However, the pandemic of the Covid-19 raised the price of meat by up to 38% in 12 months, interfering in the pockets of Brazilians and consequently in the consumption of food by Brazilians. Besides the price increase, the pandemic brought the greatest concern about the environment and health, because it is understood that epidemiological outbreaks such as the pandemic of Covid-19 are directly related to the human habit of consuming meat in their diets. The current dietary practice, has been carried out through unbridled deforestation and uncontrolled expansion of agriculture, is precisely one of the factors responsible for establishing systemic crises that threaten humanity and directly interfere with health (Carlo et al. 2020).

Products produced in Brazil (22.7%) were considered unimportant, but on the other hand the demand for fresh, healthy and quality food highlights the appreciation of small producers and the consumption of fresh food as recommended by the Food Guide for the Brazilian Population (Brasil 2014). Especially at the time of restrictive measures, the

alternative consumption movement, with organic and agroecological products, grew in the country (Duarte Pires and Silva Bega 2021).

The purchase behavior of consumers is influenced by several factors, such as: sociocultural, psychological, personality, lifestyle, learning and the perceptions of each individual, in addition to the physical environment and time pressure. This behavior occurs in the following stages: recognition of need, information search, purchase evaluation, purchase and consumption, post-purchase evaluation and, finally, disposal (Martinelli and Cavalli 2019)

In relation, the increased demand for healthier products sourced from, organic and local producers during the pandemic was occasioned by the fact that consumers were cooking more, consuming less out of home, supporting small producers, food delivery increase and health motivations, such as the need to increase immunity (Pasqualotto and Sampaio 2022). Additionally, the search for agroecological products is a current trend due to the recognition of the contribution of these production practices to environmental protection and the health of producers and consumers (Constantino et al. 2020).

Due to the emerging challenges of climate change on the food system, alternative solutions that promote food security for the Brazilian population while conserving ecosystems and supporting smallholder farmers are needed, especially in countries with high rates of food insecurity (Weintraub, Rodrigues, and Tabai 2022).

It was concluded that the population did not follow what is recommended in the Food Guide for the Brazilian Population, as well as other current recommendations, such as Sustainable Development Goals 2, 3 and 12, that are zero hunger, good health and well-being, responsible consumption, and production, respectively (Figure 1).



Figure 1. Sustainable Development Goals (World Health Organization 2015)

5. Conclusion

Given the findings, it was observed that the relationship between consumption and responsibility was not very expressive during the pandemic. Thus, it is concluded that the population did not follow the recommendations of the Food Guide for the Brazilian Population, which has a golden rule a diet based on foods closest to their natural form and the appreciation of culture, as well as the Sustainable Development Goals that aim to

combat hunger and sustainable agriculture, health and well-being and responsible consumption and production.

It is important to point out that this situation is due to different factors such as the decrease in income and mass unemployment, environmental racism, and other aspects that have been aggravated by the environmental crisis because of the pandemic that permeates the individual issue over the knowledge of the need. It is hoped that these alarming data can guide public policies in food and nutrition, especially in Brazil, to ensure Food and Nutrition Sovereignty and Security.

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