

Food consumption behavior during the Covid-19 pandemic



<https://doi.org/10.56238/globalhealthprespesc-074>

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ABSTRACT

The article presents the results and impacts on the population's food consumption behavior during the Covid-19 pandemic. Changes in routine, psychological aspects and the contribution of the media in this period form crucial points in the decision-making process in choosing food. A

bibliographic review of articles on the subject and quantitative research carried out on the Google Forms platform, published by the WhatsApp application, was carried out. The questionnaire presented a sample of 82 respondents from the city of São Paulo, with the objective of ratifying the inclinations presented in the bibliographic review and assisting in the reflection on which prevention strategies can be developed to combat inappropriate habits during the pandemic. The questions were divided into three blocks, punctuating sociodemographic, psychographic and behavioral aspects, totaling 15 questions. The survey showed that a total of 84% of respondents changed their eating routines totally or partially, in addition to indicating a high level of anxiety in the period, leading to the choice of foods harmful to health.

Keywords: Covid-19, behavior, consumption, food.

1 INTRODUCTION

A brief news story in the Hong Kong Journal about the city of Wuhan on the fateful day of November 17, 2019 about a case of a mysterious pneumonia would be able to change the course of humanity forever. The first cases of the disease, identified as severe acute respiratory syndrome, began to worry authorities officially in December of that year.

In March 2020, Brazil went into a state of alert following the announcement of the WHO (World Health Organization) about the pandemic that the world would face with the new coronavirus in circulation, called Sars-Cov-2. The disease caused by the virus, known as Covid-19, brought a new way of living, thinking and acting, so the daily life of the population changed drastically as it suffered an almost immediate impact after the painful news.

The restrictions of circulation, alteration in the routine and the psychological transformations in this period bring changes to the behavior of food consumption. The intense news about the pandemic and advertising in this period are also factors that have altered consumer perception, making him act on impulse when choosing certain foods.



Justo (2020) described in his research on the perception of the nutritionist and eating habits in the pandemic that the population tends to buy more processed and ultra-processed foods, as they are less perishable, practical and cheaper than fresh foods. The author also reports that psychological issues such as anxiety can lead to exaggerated and impulsive consumption of food.

The objective of this study is to report the impacts of covid-19 on food choice, pointing out possible changes in human behavior during the phase of social distancing, as well as observing which psychosocial aspects are relevant and that determine these consumption preferences. Therefore, the proposal of the article becomes relevant to understand how the pandemic was able to change the eating routine of Brazilians and what possible consequences may be linked to the health of the population.

2 REVISIONS BIBLIOGRAPHICAL: THE IMPACTS OF COVID-19 IN FOOD CONSUMPTION BEHAVIOR

It is necessary to understand, first, what aspects are linked to the daily choices of consumers in the context of product purchases in general, even before the emergence of the pandemic. For Bragaglia (2010), there would be three main motivations: the consumer opts for the product that brings him emotional pleasure, he can also choose something that provides him with satisfaction in relation to the functionalities of the merchandise and he can still consume products by the status that the brand provides, with the objective of being inserted in a group of society. From the latter, advertising is pointed out as an expressive factor in consumer engagement.

When dealing with the consumption of food, it is clear that even in the face of any crisis, this commodity is the last that the population will stop buying. From this view, other factors are part of the set of motivations that lead the population to opt for certain foods, in this case the space-time relationship, because over the years great transformations in the daily life of private life have led to a behavior in favor of convenience, mainly due to the lack of time, leading the population to prefer fast and processed foods. The convenience and speed in meals are valued, increasing the consumption of sandwiches, chocolates and soft drinks, in addition to the media playing an important role in this relationship, since the meal is transformed by advertising in sign, capable of inducing the purchase (ORTIGOZA, 2008).

According to Simoni (2018, p.5):

Food consumption consists of the set of foods chosen by an individual in a given period. These choices depend on the consideration of social, cultural and psychological factors and are related to the environmental conditions, history, personality and values of each individual. Such choices are not always made consciously, but are based on the desire to meet physiological needs and/or specific desires.

Still, Ortigoza (2008, p.91) reveals:



It is necessary to consider, then, that the production of some forms of commerce also ends up creating new consumption habits, new behaviors and hence new consumers. Hunger as a biological necessity is masked in certain types of trades and manipulated exaggerations occur and even if there is freedom of choice, the consumption of food loses its coherence.

When studying behavioral issues, it is evident that psychology has a fundamental role in understanding the desires and impulses present in everyday eating habits. The social context and experiences shape the thought and consequently the action (SILVA; MEADOW; SEIXAS, 2016).

According to Skinner (1982, p.43), it is possible to observe through Behaviorism the construction of habit in function of stimuli that occur in the environment in which we live:

When a behavior has a type of consequence called reinforcement, it is more likely to occur again. A positive reinforcer strengthens any behavior that produces it: a glass of water is positively reinforcing when we are thirsty, and if we then fill and drink a glass of water, we are more likely to do so again on similar occasions. A negative reinforcer invigorates any behavior that reduces or makes it cease: when we take off a shoe that is tight the reduction of the grip is negatively reinforcing and increases the likelihood that we will act like this when a shoe is tight.

Emotions undergo evaluation about positive and negative situations and are transformed throughout the events, and this factor is the object of study that evaluates the relationships between emotions, consumer behavior and influence on the purchase process. When studying the purchase process, emotive factors are determinant for the choice of affective, pleasurable and experimental products (SIMONI, 2018).

Covid-19 can also change the way the world's population relates to food, as panic and the consequent stockpiling of food causes people to buy more processed food, i.e., non-perishable, replacing all categories of fresh food, affecting the quality of the diet. Convenience products, unhealthy food and snacks in general are examples of merchandise with a longer shelf life and that are part of the choices in this period of isolation. (HASSEN; BILALI; ALLAHYARI, 2020).

In this sense, for Silva et al. (2020, p.2), during the quarantine period, two important strands were identified that point to human behavior and food choices. The imperative of the term "stay at home" (which includes the routine of digital education, work, limitation of outdoor physical activities) and the stock of food (due to the restriction of circulation) can result in factors such as: anxiety, stress, boredom and a so-called "emotional eating", which leads to an excess consumption, mainly of foods rich in fats and sugars, ingesting these products stimulates the production of serotonin in the body, which is known to reduce stress and anxiety.

Still, Durães et al. (2020, p.3), point out that cortisol levels, elevated due to stress, increase the feeling of hunger for foods called comforting for the body, in this case sugary and fatty foods. This desire for food includes the emotional, behavioral, cognitive (thinking about food) and physiological



(salivation) axes. The researchers also again address serotonin, which is responsible for the positive effect on mood. Already mentioned earlier, this neurotransmitter is stimulated, mainly, by the consumption of carbohydrates.

Another relevant point to be considered for this study is that according to Megin (2020, p.47), boredom and behaviors linked to addiction are present in people who are quite active and who had their routine changed abruptly, linking this boring feeling to less ability to deal with negative issues, making these consumers feel angry, dissatisfied and frustrated, contributing to activities that distract them, influencing the choice of food, being more likely to eat high-energy food.

In China, during the initial phase of Covid-19 in the country, there are reports from researchers about the psychological impacts on the population, demonstrating high levels of stress, anxiety and depression and how these feelings affect decisions about consumption. Drastic changes can trigger a series of negative feelings for the fear that the disease spreads in society (HASSEN; BILALI; ALLAHYARI, 2020).

Also in China, it was possible to observe in an online survey of 2,272 Chinese in 27 provinces and municipalities on eating habits during the pandemic, where an increase in the consumption of coffee, vegetables, water, fruits and grains was observed. These choices are linked to health concerns and also as a way to prevent Covid-19, as this questionnaire also showed a drop in the consumption of fish, shrimp and crab, chicken meat, cattle meat, sugary drinks and snacks (DURÃES, et.al., 2020).

Silva et.al (2020, p.11) point out the following research conducted in Italy:

A survey conducted with the Italian population through the analysis of 1,932 questionnaires showed, among the various results, in particular, an increase in the consumption of "comfort foods", especially chocolate, ice cream, desserts and snacks, given that 42.7% attributed this increase to the attempt to control anxiety levels. About 21.2% of respondents increased their consumption of fresh fruits and vegetables. Only 33.5% of those who reported reduced consumption attributed this change in diet to lower availability and access to these items.

Therefore, it is possible to verify that the level of reach of processed and industrialized foods are also a considerable point in this relationship of consumption during the pandemic, since the research conducted in Italy, found that there was an increase in the consumption of pasta, flours, eggs, milk and frozen, and a reduction in the consumption of in natura foods, such as vegetables and fruits, as these have affected the means of production and distribution during the pandemic scenario.

In a recent survey titled "Consumer Agency, Food Consumption Behavior and the Novel Corona Virus (COVID-19) Outbreak," the U.S. and Canada, for example, showed the habit of freezing fruits and vegetables, which can lead to an imbalance in sales, also influencing unhealthy eating. On the other hand, Qatar (a country located on the Arabian Peninsula) showed a reverse behavior, as there was an increase in the consumption of fresh foods, combined with health care, in addition to a low



spread of negative emotions such as worry, nervousness, depression and fear (HASSEN; BILALI; ALLAHYARI, 2020).

In Brazil, it is possible to verify in the research done by Datafolha (2020), an approach conducted with people between 18 and 55 years old, belonging to all social classes and regions of Brazil, revealing that packaged snacks or salty cookies were the leaders of consumption in the period, comparing with the analysis made in 2019 on these same products. Second place went to margarine, ketchup and other industrialized sauces (AGÊNCIA BRASIL, 2020).

It is worth remembering that visual stimuli are also important for consumer decision-making. For Jenkins (2008 apud ABREU; ALVES, 2021, p.49): Information and communication technologies contribute to changes in the social and cultural sphere and create new consumption habits, transforming the media and the way of communicating, which becomes bilateral. In this way, it is inevitable that the way of consuming the means that and there is interaction with the content will change,

First, we look at the advertising landscape, which grew during this period of isolation and benefited from social networks to disseminate various contents, including fast food and similar food products. Calls such as that of the fast-food chain Burger King: "Which of these menu items would you isolate yourself with?" aired in April 2020, was created to provide comfort in a period of uncertainty (IWASAWA, 2020).

In the opinion of Bortoleto (2020), a nutritionist at Idec (Brazilian Institute for Consumer Protection), the trend of consuming processed foods should continue "given that at this time the policies adopted so far to promote healthy eating during the pandemic have been very timid and there has been an increase in advertising and appeal, both for convenience, as for the convenience of the consumption of ultra processed foods"

Contrary to the positioning and scarce communication about healthy eating, the big brands of processed foods stand out in the pandemic by using social networks to create content and persuade the public with messages of an affective nature. The company Seara, for example, uses social media such as Facebook and Instagram to publish campaigns and ways to enjoy the moments at home, creating a link with special recipes in the style of do it yourself. On dates

For example, the phrase "This Easter, be with the one you love, even if you are not close. Discover what you can prepare at home this Sunday on our website", accompanied by an emotional soundtrack and families gathered by video conference, encourages the consumer to cook at home in a practical way (ABREU; ALVES, 2021).

A survey conducted by USP, between June and September 2020, through social networks, newspapers, television and radio, evaluated Brazilian women, through an online questionnaire, from different social classes and nutritional states about the current moment, affected by the psychological impacts in relation to habits and food choices. The questionnaire conducted with 1,183 women, among



demographic, socioeconomic and psychological questions, indicated that they began to cook more, left the diet aside, decreased trips to the supermarket and adopted the delivery system more often. The latter showed a 174% growth in demand during this period. The questions about the psychological aspects dealt with the reasons that led the participants to choose certain foods such as: hunger, desire, health, social convention). Homemade foods and sweets showed greater demand among the requests. (USP JOURNAL, 2020).

In addition to the advertising stimulus, the perception about the media during the pandemic also presented a bias about how negative news can affect behavior. A study conducted and published in the scientific journal Proceedings of the National Academy of Sciences, points out that Brazilians tend to react more strongly to bad publications, even before the pandemic took hold in the country. (CORRÊA, 2019).

Therefore, the growing wave of publications about the coronavirus has an important part in the impulse food purchase decision process, since negative news readings can trigger sadness and stress, causing consumers to seek the so-called "emotional eating", which is based on processed, sugary and high-calorie food options.

Next, table 1 shows the significant number of news published by government on Facebook, Instagram and Twitter. The search also shows the on health and the public's shares in relation to the first months of the year 2020.

Table 1

GOVERNMENT	JANUAR Y	FEBRUARY	MARC H	MARCH X JANUARY
ACTIONS	1.424.1 77	2.057.36 7	2.566.3 10	80%
CONTENT	3.995	5.013	5.363	34%
ACTIONS BY POST	356	410	479	34%
SHARES	224.565	344.773	617.982	175%
HEALTH	JANUARY	FEBRUARY	MARCH	MARCH X JANUARY
ACTIONS	703.534	726.277	802.357	14%
CONTENT	807	812	858	6%
ACTIONS BY POST	873	894	935	7%
SHARES	14.282	24.799	20.758	45%

Source: CAMPOS, 2020. Available at: <https://www.comscore.com/por/Insights/Blog/Consumo-of-the-social-networks-in-Brazil-during-the-Coronavirus-pandemic>. Accessed on: 04/18/2021.

Analyzing or frame is possible check one crescent numbe from sharing government-related content and health-related topics, especially in the month of March, when the new coronavirus was beginning to be prominence throughout the country. Constant and informative publications on the of the pandemic in Brazil and in the world have had a direct impact on the feelings of the population and



a climate of uncertainty was about to be installed in the routine of the Brazilian. The number of news sharing about the government has skyrocketed 175% from January to March in 2020. Health news, on the other hand, jumped by 45% between the same months. The actions in the networks carried out by the government, increased 80% in the first quarter and health care grew by 80% 14%. This panorama reveals that during this period there has already been a change in the news consumption behavior and greater audience engagement in relation to government and health information.

3 METHODOLOGIES

In addition to the literature review on the subject, where the results of several analyses carried out in Brazil and other countries on the impacts on food consumption behavior in the face of Covid-19 were also presented, a quantitative survey was proposed for respondents from the city of São Paulo. A questionnaire was used, diagrammed through Google Forms, which was disseminated through the WhatsApp application. The measurement of the results and crossing of data for analysis were performed with the aid of Tableau Public software. All interviewees were recruited voluntarily and knew from the introduction of the questionnaire what the objective of the study would be. Individuals were also selected for convenience so that they were readily available.

The research included a total of 15 questions, which addressed sociodemographic, psychographic and behavioral issues. There were seven multiple-choice questions that involved gender, age, marital status, number of children, school level and income. In addition to three questions related to the eating routine and the types of food consumed at the time, using the multiple choice and also the four-point Likert scale, mentioning the possibilities such as: totally agree, partially agree, totally disagree and partially disagreement. Finally, five questions about feelings and motivations were proposed, using only the Likert scale, in this case.

Therefore, a pre-test was conducted with 10 respondents so that the questions were clear, coherent and easy to interpret, detecting possible noises and problems that could affect the results. Then, the research was adjusted and applied efficiently among adult men and women. The questionnaire generated a total of 82 samples for analysis and subsequent results pointed out by Tableau with data downloaded from Google Forms. The results were shown between tables and graphs, indicated by percentage and frequency.

4 FINDINGS

4.1 SOCIODEMOGRAPHIC CHARACTERISTICS

Table 1 shows the results of the sociodemographic questions, indicating 62 respondents, where 76.8% were women and 23.2% were men. Ages vary, indicating the majority of 28% between 45 and 59 years, followed by 22% from 25 to 30 years, 17% between 31 and 37 years and finally, an average



of 10% in the scales of 18 to 24 years; 38 to 44 years old and over 60. In addition to the age group, the majority of 54.9% are married, followed by 37.8% single and 7.3% divorced.

Table 2

Variable	Answer options	Frequency	Percentage
Gender	Male	19	23,20%
	Female	63	76,80%
Age group	18-24	10	12%
	25-30	18	22%
	31-37	14	17,10%
	38-44	8	9,80%
	45-59	23	28%
	> 60	9	11%
Marital status	Married	45	54,90%
	Single	31	37,80%
	Divorced	6	7,30%
Number of Children	1	11	31,40%
	2	18	51,40%
	3	6	17,10%
School Level	Middle school	18	22%
	Graduation	32	39%
	Graduate	29	35,40%
	Masters	3	3,70%
Income	1-3 minimum wages	13	15,90%
	3-6 minimum wages	27	32,90%
	6-9 minimum wages	25	30,50%
	9-12 minimum wages	10	12,20%
	12-15 minimum wages	2	2,50%
	> 15 minimum wages	5	6,10%

Source: Own author.

Table 1 also shows a profile with the majority being part of the middle class, identified among classes B, C and D, which make up 78.1% of the respondents. This parameter is associated with the sociodemographic table of the IBGE (2020). It is also possible to verify that 78% have higher education and some kind of specialization. Therefore, the research is segmented to a portion of the population that has easy access to the internet, through which this research was disseminated, in addition to the total understanding of the content exposed, knowing how to correctly interpret the questions.

4.2 BEHAVIORAL CHARACTERISTICS

Table 2, on the other hand, shows the behavior of food consumption in the face of COVID-19. Scoring if there were changes in the eating routine, changes in food choices and which products are being consumed more by the respondents. It is possible to observe that a large part of the public, totaling 84.1%, totally or partially altered the feeding routine during the pandemic. Regarding the change in food choice, 78.1% believe they have changed their choices totally or partially. Finally, it was possible to choose which products (more than one option) are on the rise in the current routine of each participant, sweets led reaching 58% of the responses, followed by fast food with 47.60%.



Table 3

Variable	Answer options	Frequency	Percentage
Changed the eating routine	Totally Agree	31	37,80%
	Partially agree	38	46,30%
	Strongly disagree	4	4,90%
	Partially disagree	9	11%
Changed the choice of food	Totally Agree	30	36,60%
	Partially agree	34	41,50%
	Strongly disagree	6	7,30%
	Partially disagree	12	14,60%
What foods have you been consuming the most	Fast Foods	39	47,60%
	Sweets	48	58,50%
	Vegetables, Vegetables and Fruits	25	30,50%
	Animal Protein	46	56,10%

Source: Own author.

4.3 PSYCHOGRAPHIC CHARACTERISTICS

To conclude the research, it was necessary to understand the feelings of the participants regarding the pandemic and what psychological and social aspects can influence food choices. Next, in table 3, it is possible to verify the level of anxiety of the respondents, represented by the Likert scale from 1 to 4, and 56.1% appear at the highest level (4), followed by 29.3% by the intermediate level (3), 9.8% by the median level (2) and only 4.9% do not feel anxious, represented by the level (1).

Table 4

Variable	Answer options	Frequency	Percentage
On a scale of 1 to 4, how anxious do you feel in this time of pandemic?	1	4	4,90%
	2	8	9,80%
	3	24	29,30%
	4	46	56,10%
My emotions are tied to the type of food product I consume.	Totally Agree	27	32,90%
	Partially agree	37	45,10%
	Strongly disagree	10	12,20%
	Partially disagree	8	9,80%
I believe that the daily news about the pandemic can induce me to a compulsive behavior of food consumption.	Totally Agree	30	36,60%
	Partially agree	29	35,40%
	Strongly disagree	16	19,50%
	Partially disagree	7	8,50%
I believe that the consumption of industrialized foods can bring a feeling of momentary comfort in these pandemic times.	Totally Agree	29	35,40%
	Partially agree	39	47,60%
	Strongly disagree	5	6%
	Partially disagree	9	11%
Do social media posts from fast food restaurants make you consume these	Totally Agree	19	23,20%



foods more often?	Partially agree	42	51,20%
	Strongly disagree	11	13,40%
	Partially disagree	10	12,20%

Source: Own author.

Most respondents totally or partially agreed that day-to-day emotions influence the type of food product consumed, totaling 78% of incidence. This inclination is directly linked to the issue of the high level of anxiety linked to the concept of "emotional eating", which is about choosing foods rich in fat that are able to bring a sense of momentary comfort to those who consume, since 35.4% of respondents totally agree with this statement and 47.6% partially agree.

Regarding access to news about Covid-19 and subsequent consequences regarding human behavior, it is evident the expressive agreement of 73% on the influence of the media and the feeling of the public that translates the bad moment into immediate needs, bordering on compulsivity, seeking comfort in food, most often with high fat and sugar content, being harmful to health. In addition to the reports on the pandemic, the advertising of foods harmful to health on social networks also aroused a more frequent consumption, generating a partial agreement of this statement of 51.2% and a total of 23.2%.

5 FINAL CONSIDERATIONS

After the bibliographic study with the notes of several countries, including Brazil, on the behavior of the population regarding the issue of food choices during the Covid-19 pandemic, it was possible to ratify this information through the questionnaire conducted for this article, which comprised the social, psychographic and behavioral aspects as strands for the study of the proposal. It was found, as the survey indexes showed, that most of the respondents had their eating routines affected by the pandemic, perceived a high level of anxiety in the period, as well as a compulsive eating behavior linked to visual stimuli observed in the media, driven by fast-food advertisements or with negative news from communication channels.

The number of searches for foods harmful to health increased in Brazil, unlike the questionnaire conducted with 2,272 Chinese, where the population reported that the reason for the increased intake of healthier products and an active change in eating habits was to prevent Covid-19 (DURÃES, et.al., 2020).

It is necessary to take care of health to prevent diseases, especially in this delicate time, where a pandemic is ravaging the world. Studies on the Brazilian population and the relationship with eating behavior, especially in this period of fragile health, draw attention and raise an alert about the complications that may arise, especially at a time when the immune system needs to react and poor food choices from day to day can interfere negatively. The article helps to reflect on the dangers that



Brazil may be following and which prevention strategies can be developed later, helping to combat inappropriate habits



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