





Entry

# Self-Service Restaurants in SARS-CoV-2 Pandemic

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**Definition:** During the SARS-CoV-2 pandemic, the self-service restaurant sector, as well as other types of food services, are facing an unprecedented crisis needing to adapt their service to avoid closing their doors. With varied and quick meals, the self-service buffet is one of the most important types of outside services. However, the type of service where the clients follow a line on the buffet and serve their meals has impaired traditional restaurant operation during the SARS-CoV-2 pandemic and, perhaps, after it. In this sense, this study presents an overview of the self-service buffet restaurant operational system in the context of the SARS-CoV-2 pandemic.

**Keywords:** food safety; foodservice; SARS-CoV-2; risk; buffet



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## 1. Introduction

During the SARS-CoV-2 pandemic, the restaurant sector has faced an unprecedented crisis, and it needs an urgent discussion on how to handle or adapt the service. Among other types of restaurants, the self-service buffet is one of the most important types in the food service sector as part of hospital cafeterias, hotels, corporations, educational institutions, and street foodservice, aiming for diversified and quick meals. The self-service buffet restaurant sector deals with food contamination hazards from food handlers and customers while serving their plates, increasing the risk of foodborne diseases (FBDs). Besides the FBD risk by food handlers, the way customers serve themselves can increase this risk. Customers may touch the utensils, talk while in line, cough or sneeze while serving the meal, let objects or part of their clothes touch food at the buffet, let the utensils fall into the dishes, and touch food utensils without proper hand hygiene (even after coughing or sneezing and covering with their hands). All these habits may potentially expose clients to contamination by SARS-CoV-2, causing COVID-19. Lalley [1] pointed out that the decline in restaurant sales has been driven more by individuals' unstable psychological fear of contracting the infection than their financial difficulties during the pandemic.

In this sense, the self-service buffet restaurant sector has a major challenge to maintain running businesses during and after the SARS-CoV-2 pandemic, adapting to new sanitary hygienic standards, and seeking to implement sustainable actions. Therefore, this work will focus on the reality of the self-service buffet restaurant sector. We invite the researchers and the community to discuss this type of service's potential adaptation, avoiding the closure of self-service buffet restaurants impaired by the SARS-CoV-2 pandemic. Additionally, we need to discuss this new reality and its impact on sustainability for our planet.

## 2. Food Away from the Home and Self-Service Restaurants

Worldwide, people have grown to rely on the convenience of consuming food prepared outside of their homes [2–4]. This pattern is mainly due to the lack of time and skills to prepare meals. One of the most critical barriers to eating meals prepared at home is

the challenge in balancing work, school, and leisure schedules, forcing people to “eat on the run” [5].

This scenario led to the foodservice sector’s growth, especially the establishments that provide fast meals with affordable prices to consumers, mainly on workdays and leisure moments. It is a way to avoid eating fast foods and choose healthier options. The self-service buffet is a typical food service style that offers breakfast, snacks, lunch, and/or dinner meals. It is a type of service with an extended menu with all dishes prepared and served directly to customers who can choose what they want to eat from the buffet line. In some countries, self-service buffet restaurants represent more than 60% of the foodservice sector [6], showing the potential of this type of restaurant and its importance while discussing the pandemic period for job maintenance.

The self-service meal is characterized by an offer of dishes placed in a buffet that people can choose among the offered options to compose their plates. It is a common type of service as part of hospital cafeterias, hotels, corporations, educational institutions, and street restaurants. There are two primary modalities of this kind of restaurants: “by the kilo”, in which customers pay the price considering the weight of the meal on their plate; and “fixed price all you can eat buffet”, where costumers pay a fixed price and serve themselves as much as they want [6,7]. In both ways, traditionally, there is a line for people to follow to access the buffet and choose what they want to eat, increasing the risk of food contamination [8]. In a pandemic, consumers may reject self-service buffet restaurants, believing that an environment full of people talking around the dishes, sharing the utensils, sitting at shared tables, and talking while eating poses a risk for Sars-CoV-2 contamination [8]. Before the SARS-CoV-2 pandemic, people usually stayed very close to one another while serving their plates in line. The habit of talking was prevalent, especially when waiting for a food handler to portion the buffet’s specific items.

Considering food handlers, restaurants should continue to follow the good practices previously adopted by the sector. However, it is necessary to add some practices to avoid Sars-CoV-2 contamination. In general, restaurants will need to have greater control over suppliers and how the goods reach the kitchens. Information on how the packages are cleaned and transported and if the employees delivering goods follow security protocols would be control points. Restaurants may rearrange food handlers’ lunchtimes to limit the number of workers in the kitchen/ room while menus are produced. They need to provide washbasins with sufficient sanitizers to the number of food handlers or offer hand sanitizer dispensers. All plates and utensils must be washed and sanitized in dishwashers with hot rinsing. Otherwise, the restaurant needs to provide disposable utensils. Another option is to provide sanitized and packaged cutlery. The staff at the buffet must wear disposable gloves and masks to replace and serve dishes. These are some of the changes restaurants may have to adopt to continue their business. There is an urgent need to modify and improve the Food Safety Management System.

### *2.1. Self-Service Buffet Restaurants and the Potential Risk of Contamination*

As well as any other type of foodservice, self-service buffet restaurants must offer safe food and a safe environment for their clients. Several studies have focused on food handlers as responsible for food contamination due to their contact with ingredients and meals while preparing them [9–12]. However, considering these restaurants’ self-service buffet style, customers are also highlighted as an actual contamination vehicle due to their attitudes before and while serving [13–15].

Studies of attitudes on self-service buffets have shown that consumers engage in unsanitary behaviors [16–18]. Among the types of restaurants, self-service poses unique problems because foods are displayed to customers, and there is little (if any) control with hands, clothing, dirt, and droplets that may contaminate foods and utensils [13,14,19]. There is the need for rigorous control of the period the dishes are exposed and their temperatures. Time and temperature are the key elements to prevent FBD, not only while serving the dishes, but also during preparation. When focusing on the customers, the risks

may be diminished by encouraging them to wash their hands before serving or to use a hydroalcoholic solutions. Clients should be alerted that it is not time to talk to others or on the phone while serving. If they need to cough or sneeze, they should step away from the counter. Attention should be paid to objects and parts of clothes that can touch the food, and customers should not have to touch any food while serving themselves. These actions are important to prevent FBD and contamination by SARS-CoV-2, causing COVID-19 [16]. These practices are even more relevant in environments that should excel in hygiene care, such as hospitals. It is also important to highlight that customers do not always wash or use alcohol to clean their hands before serving themselves; therefore, they could represent a contamination vehicle for food utensils [16,20].

## 2.2. Self-Service Buffet Restaurant and COVID-19

The world is facing an unexpected COVID-19 pandemic with several economic, social, environmental, and health consequences that brought the risk of death from viral infection and psychological burdens affecting individuals' ways of life [21]. Until now, there has been no evidence about the transmission of SARS-CoV-2 by food [22]. However, the COVID-19 pandemic's impact represents a service disruption that most restaurant sectors were unprepared to handle. They had to shift their business model to offer delivery or serve take-away portioned meals. In some countries, when restaurants started re-opening, consumers demonstrated high levels of reluctance for dining out in foodservice establishments defined by governments as non-essential places of business [23]. Consumer research performed in March 2020 in the United States showed that almost 90% of the consumers believed that food from grocery stores and homes was safer than food from restaurants [24]. Consumers could have interpreted restaurants' closure as a sign that restaurant foods were less safe than food in general [25].

Keeping operations running presents a significant challenge for most restaurants dealing with customers' contamination concerns [26]. Additionally, the economic impact can influence the paths some of these restaurants will take. In this sense, the self-service buffet restaurant seems to be the most affected type of foodservice during the pandemic due to the type of service it offers. They cannot offer all the varieties of dishes displayed in the buffet line for delivery, changing the service's planned style. If they cannot offer this variety, they will probably need fewer food handlers, and this cycle impacts the economy of the sector. The customer's confidence in this sector will take some time to be regained after all the information provided during this critical time. In countries where they were allowed to re-open, more challenges arose. Training for all the staff members, purchasing disposables for costumers to serve themselves, and installing more sinks for handwashing and alcohol gel dispensers brought costs and more time to run the business properly.

Due to food being exposed to customers, it poses challenges for protecting them from FBD and the potential contamination of SARS-CoV-2. Self-service equipment and operations may not provide adequate protection from primary risks such as dirty hands (on utensils) and droplets (from sneezing, cough, talking) [7,13]. Sneeze guards have been used to protect buffet foods. However, it is common to lack these guards in some restaurants, or, if provided, they are not adequately addressed for all operating conditions, including hospital cafeteria buffets [7,13]. Self-service buffet restaurants have faced more challenges during the COVID-19 pandemic due to social isolation. In normal functioning, it exposes the food and utensils to customers as an additional source of contamination. Much has to be discussed about how self-service buffet restaurants should deal with the fear and the risk of contamination after the COVID-19 pandemic breakout. Improvements in operating standards are needed to promote safety in buffet restaurant operations and recover the clients' trust.

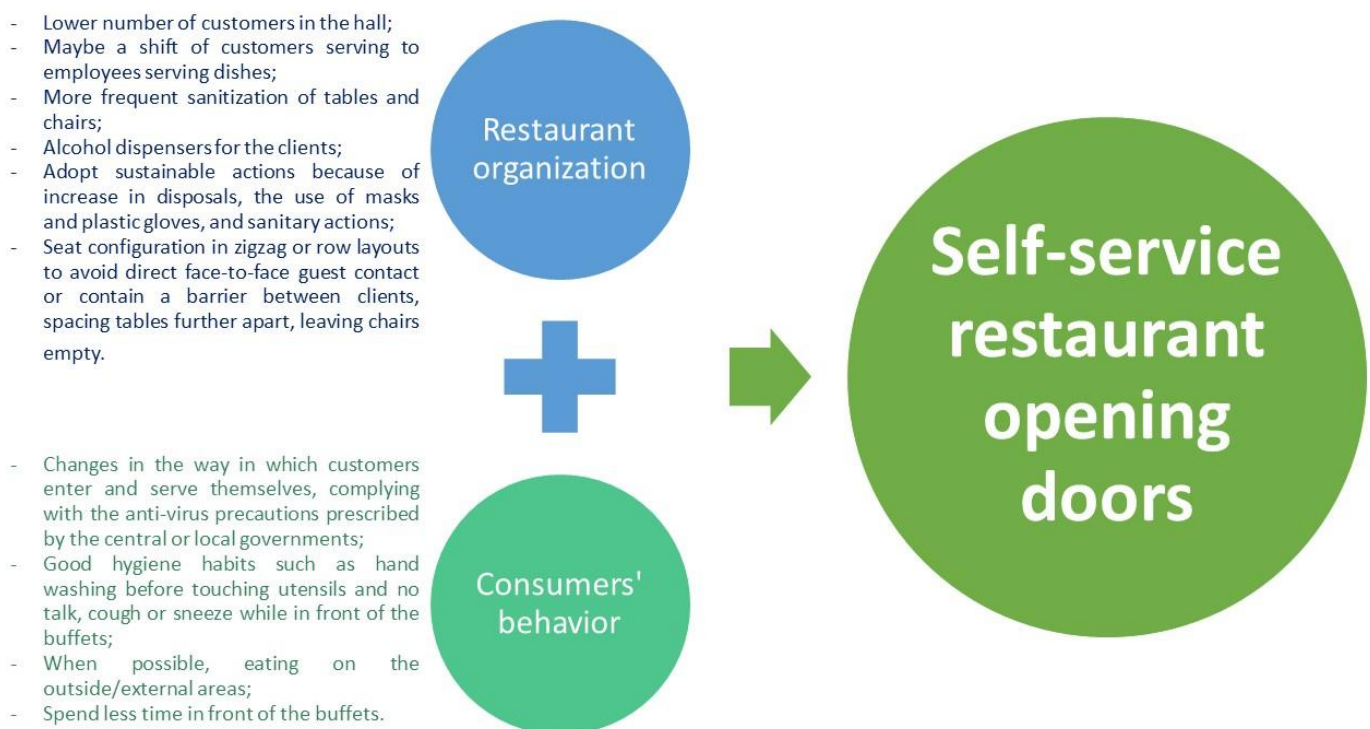
During the COVID-19 pandemic, regular operation of self-service restaurants is not possible. In this sense, operational adaptations to order delivery or takeout can minimize unnecessary interpersonal contact and emphasize the restaurant's commitment to safety and hygiene protocols. Additionally, a study on the stability of SARS-CoV-2 in aerosols

showed that SARS-CoV-2 could be viable in aerosols for up to 3 h [27]. Therefore, risks of contamination from SARS-CoV-2 while eating food in indoor environments due to airborne particles are higher than those in outside/external areas. After the pandemic period, the buffet restaurants' cleanliness and food quality standards are imperative, as is crowding control, by reducing the number of seats or increasing space between tables [28].

These restaurants also count on the volume of clients who serve themselves, eat, and quickly give space to other customers. Will it be worthwhile for the sector to open and produce all the dishes if they have half of their customers? Our studies in Brazilian self-service buffets showed that customers usually take 20 min to enter a restaurant, serve, and eat. With changes related to a minimum safety space between clients in line and between tables, this time will increase, and tables' shifts will take longer. Profits come from a balance between expenses and the flow of customers.

To maintain these restaurants opened during the pandemic, many started delivery services. This change in the market brought some shifts and questions to the sector. Customers started to have their favorite foods at home without direct exposure to COVID-19. However, food safety should be a concern because adequate transportation and packaging are essential to avoid food contamination. Owners had the chance to sell their products with a smaller number of employees and without the costs of maintaining a restaurant hall. Nevertheless, disposable silverware increased, as well as mask and glove disposals, impacting sustainability. It is difficult to think about the losses and benefits of rethinking how the buffet restaurants will return.

Could this be the end of the self-service buffet restaurant? Will this type of foodservice survive the COVID-19 pandemic? To answer these questions, it is important to consider several aspects, such as those shown in Figure 1.



**Figure 1.** Proposed rules for self-service buffets during the COVID-19-pandemic.

### 2.3. Self-Service Buffet Restaurant and Sustainability Actions in the COVID-19 Pandemic

With the changes in the meal production sector due to the COVID-19 pandemic, such as the increase in disposables, masks and plastic gloves, and a more significant concern with hygienic-sanitary actions, the activities involving sustainability indicators have become necessary.

Restaurants use natural resources that cause environmental and economic impacts in all stages of meal production, ranging from production, transportation, reception, storage, production, and even distribution [29], such as excessive food consumption. Energy, water and plastics, food waste, carbon footprint accumulation, and high volume of solid waste are of concern when evaluating sustainability [30]. In the course of the pandemic, food production has remained high. However, there has been a reduction in the demand for food caused by the interruption of foodservice at work and entertainment activities such as hotels, restaurants, schools, and industries. Restaurants suffered due to logistic difficulties and higher sanitary barriers, causing an overproduction of food, leading to more significant food losses and waste [31].

Sustainability in meal production should be described by ecologically sustainable practices that aim to mitigate the environmental impact by rationally using natural resources. This can be achieved through activities such as reducing waste generation, increasing recycling, stimulating the use of food socio-biodiversity, waste reduction, and the training of employees to use more environmentally friendly technologies [32].

To comply with the pandemic norms, self-service restaurants have provided meals by delivery or takeout, increasing the use of disposables. Strategies such as asking the customer to bring their own packaging to take the meal, use their own cutlery during meals, and portion only the amount of food needed can mitigate the generation of solid waste. In turn, restaurants can exchange their taps for automatic activation, reuse rainwater for cleaning environments and counters, use pieces of equipment with better energy efficiency, and encourage recycling or even use biodegradable disposables. Due to the need to guarantee society's sustainable development, there is a need to promote the intake of ecologically correct and healthy foods. Local fairs were closed, and regional markets reduced their activities due to the pandemic. Organic products' sales, which had been growing before the pandemic, have been reduced to a minimum due to difficulties in marketing [31].

Climate change jeopardizes advances in development and poverty reduction, affecting food systems in low- and middle-income countries. The COVID-19 pandemic exacerbated problems such as hunger, unemployment, and the reduction in income. Social inequalities require urgent economic and social measures to guarantee healthy and sustainable food [33]. This pessimistic scenario will directly impact food security and nutrition indicators, moving us further away from the sustainable development goals, mainly increasing hunger [31]. In the context of sustainability, social measures in restaurants can be carried out, such as reducing the price of one kilo of food after a few hours have elapsed, purchasing groceries from small producers, and donating surplus to low-income people or needy institutions.

Concerning the social aspect of sustainability in self-services restaurants, ready-made foods that have not been distributed are frequently discharged. If kept under adequate time/temperature conditions, it could be used to feed insecure individuals. Considering that food waste squanders many natural resources (impacting sustainability) mainly at the end of the food production chain, food recovery could prevent surplus food from being disposed of in landfill [34], and providing food to reduce hunger.

Awareness campaigns for assembling dishes can be low-cost solutions. They often involve posters, pamphlets scattered around food services, or even the setting up of a standard dish to assist diners in portioning and promoting sustainability in restaurants. Other important alternatives to be included in self-service restaurants are recycling and composting.

Recycling is the best alternative to reduce environmental problems and increase the useful life of landfill sites. It is the process in which materials that would be discarded, or even those that have already been, are collected, separated, and processed, with the aim of being used as a raw material in the manufacture of goods. It is an action that benefits all involved in the production process: suppliers, consumers, the environment, and the government. It brings benefits to the environment. It allows natural resources, water, energy, and raw materials to be saved. For society, it generates jobs and income with the sale of recyclables [35]. On the other hand, composting is a set of techniques applied to

control organic materials' decomposition to obtain a more stable material rich in humus and minerals, which generates a production chain with sustainable features [36,37].

It is important to highlight that customers' eating behaviors are constantly changing, even before the COVID-19 pandemic. The increase in diseases related to nutrition and food has increased nutritional awareness and enhanced the search for healthier and sustainable meal services. Therefore, consumers show an increasing health concern and are better able to choose their meals due to dietary, hygienic–sanitary aspects, as well as organic, vegetarian, or allergen-free foods. Bearing in mind the need to guarantee the sustainable development of society, there is a need to promote ecologically correct and healthy foods [38].

If society was already thinking and changing meal production procedures to achieve sustainability, with the SARS-CoV-2 pandemic, challenges have increased. Self-service restaurants face economic problems, and owners have to provide secure ways for customers to feel safe to visit and eat in these restaurants. More waste is generated with masks, plastics, and gloves, and the world is facing hunger and poverty in many countries. More than ever, society needs to look for solutions and continue thinking about sustainable actions.

### 3. Conclusions and Prospects

The COVID-19 pandemic has shown that we need to change habits and values. It is not always easy, but perhaps we may start to see how it is possible to mold society differently. The pandemic could be a chance for restaurants to adapt and look for ways to rethink their services and costs, especially in a time of economic recession, when businesses are expected to receive fewer customers, including sustainable practices that cover social, economic, and environmental indicators. Therefore, it could not be the end of the self-service buffet, but time to rethink and remodel it to meet the “new normal”. In the end, all the actors involved—buffet restaurants' employers, employees, and clients—should adapt themselves to face the COVID-19 pandemic's operational, financial, and emotional burdens. During and after the pandemic, self-services must communicate their best practices clearly for customers to feel confident dining out. Self-services must do their best to minimize critical flaws in their service provision process and outcomes.

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