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https://doi.org/10.22239/2317-269X.02334

Evaluation of the hygienic-sanitary practices of art and gastronomy fairs in Rio de Janeiro, Brazil

Práticas higiênico-sanitárias em feiras de arte e gastronomia de Niterói/RJ, Brasil

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Received: Apr 17, 2024
Approved: Aug 23, 2024

How to cite: Medeiros MGGA, Petrucci Junior, R, Coelho NCM, Castro JSM, Lourenço MS, Santos EF, Penha MP. Evaluation of the hygienic-sanitary practices of art and gastronomy fairs in Rio de Janeiro, Brazil. Vigil Sanit Debate, Rio de Janeiro, 2024, v.12: e02334. https://doi.org/10.22239/2317-269X.02334

ABSTRACT

Introduction: Street food is an important market segment with an impact on the generation of jobs, income, and appreciation of food culture. However, it poses a challenge for public health because it increases the risk of transmission of pathogens from foodborne disease. **Objective:** Evaluate the hygienic-sanitary practices of food handlers at fairs and the physical-functional conditions of gastronomy and arts fairs in the city of Niterói/RJ. **Method:** The descriptive methodology was applied, using a qualitative and quantitative approach. For data collection, two scripts were developed and applied to evaluate the functional conditions of the fairs and the hygienic-sanitary practices of the handlers during sales, and a questionnaire was administered to outline the socioeconomic profile of the workers. **Results:** 68.1% were women; average income of 3 minimum wages; 51.1% had completed higher education; 46.8% had never taken a Good Food Handling Practices course; 70.5% did not use hair protection; and 86.8% used adornments. In 40% of the fairs visited, there was the presence of animals/vectors, as well as the absence of toilet facilities for handlers. **Conclusions:** Thus, despite its socioeconomic importance, the street food trade represents a potential health risk. Therefore, it is necessary to expand the hygienic-sanitary training of handlers and improve the environmental conditions of fairs.

KEYWORDS: Street Food; Health Risks; Good Manipulation Practices; Food Safety; Food Handlers

RESUMO

Introdução: A comida de rua é um importante segmento de mercado com impacto na geração de empregos, renda e valorização da cultura alimentar. No entanto, representa um desafio para a saúde pública, devido ao risco na transmissão de agentes patogênicos de doenças transmitidas por alimentos. **Objetivo:** Avaliar as práticas higiênico-sanitárias dos manipuladores de alimentos de rua e as condições físico-funcionais de feiras de gastronomia e artes na cidade de Niterói/RJ. **Método:** A pesquisa foi aplicada e descritiva, com abordagem qualitativa e quantitativa. Para a coleta de dados foram desenvolvidos e aplicados dois roteiros para avaliar as condições funcionais das feiras e as práticas higiênico-sanitárias dos manipuladores durante as vendas, e um questionário para traçar o perfil socioeconômico dos trabalhadores. **Resultados:** Mulheres eram 68,1%; renda média de três salários mínimos; 51,1% tinham ensino superior completo; 46,8% nunca fizeram curso de Boas Práticas de Manipulação de Alimentos; 70,5% não utilizavam proteção capilar; 86,8% usavam adornos. Em 40% das feiras visitadas houve presença de animais/vetores, bem como ausência de instalações sanitárias para os manipuladores. **Conclusões:** O comércio de comida de rua representa um potencial risco para a saúde, apesar da sua importância socioeconômica. Portanto, é necessário ampliar a formação higiênico-sanitária dos manipuladores e melhorar as condições ambientais das feiras.

PALAVRAS-CHAVE: Alimento de Rua; Riscos Sanitários; Boas Práticas de Manipulação; Segurança Alimentar; Manipuladores de Alimentos

INTRODUCTION

The sale of street food in Brazil is a legacy of the Portuguese colonial period, when this activity was carried out by enslaved women. After the arrival of the Portuguese royal family in 1808, the practice intensified[1]. Over the following centuries, street food vending became a labor activity of social, economic, nutritional, and health importance in Brazil[2]. Thus, although the sale of street food is historical in the country, there is currently, in addition to the sale of typical products, the insertion of new eating practices, facilitated by the permeability of Brazilian food culture, through the acquisition of typical foods from other cultures, such as American, African, European, and Asian[3].

In Brazil, street food is present in several regions, selling industrialized and artisanal food, occupying places with a large flow of people, such as shopping center, fairs, squares, and public roads[4]. Free markets are characterized as a public place with an open-air retail market, representing a place of sociability, bringing people together, providing exchanges of cultural traditions, and boosting tourism[5,6]. This trade is an important source of income, especially in developing countries with high unemployment rates, a shortage of formal jobs, low purchasing power, and limited access to education[7]. From a food and nutrition perspective, the sale of street food is also a reflection of the country's socio-economic situation, as it provides an easy-to-acquire food alternative, both due to the ease of physical and social access, due to its lower cost.

However, from the point of view of food and nutritional security, the street food trade has contradictory aspects. At the same time as it can give parts of the population access to work, income, and a more affordable way of eating, while preserving their food culture, it can also make them vulnerable and victims of their own lack of knowledge about hygiene and health care with food, which can lead to the transmission of various pathogens[8]. According to studies by Bezerra[2] and Girmay[9], low levels of hygiene during food preparation and a lack of knowledge about health safety have been identified as factors associated with foodborne diseases (FBD), both in formal production establishments and in informal ones that sell street food.

Brazil has technical regulations on Good Practices that cover different types of Food Services, through Collegiate Board Resolution (RDC) No. 216, of September 15, 2004[10], and on October 31, 2013, RDC No. 49 was published, which covers micro-entrepreneurs, producers of goods and services subject to health surveillance actions, individuals and rural family entrepreneurs, and the solidarity economy[11]. Food producers and marketers are included in this group.

The competence to legislate on the promotion and protection of health related to food safety is based on a tripod of shared responsibility between the Union, the states and the municipalities under the Brazilian National Health Surveillance Agency (Anvisa) and its secretariats through Law No. 9.782 of January 26, 1999[12]. Some Brazilian states and municipalities have specific health resolutions and decrees on the production and sale of street food, such as the state of Rio de Janeiro, where State Decree nº 6.538, of February 17, 1983[13], which establishes general rules about food trade, but not specific to the street food segment. In São Paulo, Law No. 15.947, of December 26, 2013, is in force in São Paulo, which lays down the rules for the sale of food on public roads. establishes criteria for the location of vendors, equipment and the types of products allowed, among other determinations, including food sanitation issues, under the competence of the Health Sanitary Surveillance Coordination[14].

However, educational and inspection actions are pertinent challenges for this market segment, in which workers often lack essential guidance and working conditions in order to identify and correct possible situations that could have a negative impact on the health of the consumer population. Researchers point to the challenge of regulation as a situation that requires urgent and necessary measures, considering the growth of this trade and the health risks associated with the activity[15,16].

According to the World Health Organization (WHO), there are more than 250 types of FBD, representing one of the main public health problems worldwide. According to a survey by the Pan American Health Organization (PAHO)[17], around 77 million people are affected by FBD every year in Latin America and 9,000 die. In the global panorama, the WHO in partnership with the United Nations (UN)[18] estimates that 600 million people fall ill every year, including 40% of children, and 125,000 die after eating contaminated food.

According to the WHO[19], food handlers play an important role in preserving food hygiene throughout the production chain, from receiving, storing, preparing, and distributing the final product[20,21]. Food workers usually start out in this activity with no prior knowledge or experience of the job. Knowledge is acquired over time through on-site training, when it is provided, or through the transmission of knowledge by other workers[22,23]. The literature reports that these workers have a low level of schooling and lack technical and conceptual knowledge about food handling, such as hygiene and sanitary control, storage and conservation, quality, dietary techniques, and others[9,22,23].

In this way, handlers' knowledge of Good Food Handling Practices (GFHPs) serves as a basis for understanding the risk factors involved in the food manufacturing and marketing process, such as: exposing food to inadequate storage temperatures, lack of care against insects, pests, dirt, inadequate infrastructure, and the intrinsic characteristics of each food that contribute to the emergence of FBD[23]. Good food manufacturing and handling practices are therefore important strategies for ensuring food safety and quality, with an impact on public health.

The aim of this study was to analyze the hygienic and sanitary practices of food handlers at food markets in the city of Niterói, Rio de Janeiro (RJ), in relation to the physical and functional conditions of these places and the socioeconomic profile of these workers. This research can be considered relevant in studies related to food safety and collective health in the street food trade, given that FBD cause economic losses and affect the health of consumers.

METHOD

This is an applied, exploratory, and descriptive study, with a mixed qualitative and quantitative approach[24,25]. The research was carried out from March to October 2022 at the art and gastronomy fairs registered with the Niterói Department of Culture: Feira do Campo São Bento, Feira da Praça do Ingá, Feira da Praça Getúlio Vargas, Feira de Muriqui, Feira de Itaipu, Feira da Praça do Aviador, and Feira do Zumbi. However, the Praça do Aviador and Zumbi fairs were not included in the analysis due to the absence of food handlers during the research period. Partnerships were established with the Health Surveillance Agency (Visa), the Secretariat for Economic Development (SEDEN), and the Secretariat for Culture/ Casa do Artesão of the municipality of Niterói, for the development of the project.

After mapping the fairs using Google Earth Pro software, using geolocation data (latitude and longitude), meetings were held with the coordinators of the fairs, with the aim of bringing them closer to the working group and presenting the project, in order to disseminate the research among the food handlers of the respective fairs, which are the subject of the research.

Three research tools were used to collect the data: a) an interview script applied to the food handlers at the fairs studied, with open and closed questions, structured into 30 questions on: socio-economic aspects; health care; knowledge of GFHP, among others pertinent to the topic; b) a structured observational script on hygiene and health practices during the sale of street food at the fairs, in order to analyze: personal hygiene, the use of good practices at the time of sale, with the food, the utensils, and the support structure, such as the stalls; and c) an observational script to assess the physical-functional conditions of the places where street food is sold at the fairs studied, in which aspects such as: physical space, cleanliness, collection of solid waste. and the existence of a support area such as toilets and sinks for washing the hands of the handlers and the utensils used were analyzed. The scripts were developed based on the health legislation RDC no. 216/2004[10] and State Decree no. 6.538/1983[13] and scientific data on the subject. The review consulted observational, descriptive and analytical studies in English, Spanish and Portuguese in the following databases: PubMed, SciELO, Lilacs, Web of Science, and Scopus. The instruments developed were tested in environments similar to the research.

The observational scripts and the questionnaire were applied during the handlers' work activities, according to the calendar of the fairs studied. The sample was intentional, made up of 61 food handlers working at the selected fairs. The observational research included all the handlers (n = 61), with variations in the number of individuals at each analysis site due to the space available, the structure and the intrinsic characteristics of each fair. Thus, there were five participants from the Praça do Ingá market, 2 from the Praça Getúlio Vargas market, 26 from the Campo São Bento market, 22 from the Muriqui market, and 6 from the Itaipu market. Of this total, only 14 people did not agree to take part in the survey, resulting in 47 participants.

All participants were informed about the aim and methods of the study and signed an informed consent form. The project was approved by the Research Ethics Committee of the Fluminense Federal University School of Medicine (CEP-FM/UFF), under Certificate of Submission for Ethical Appraisal (CAAE) no. 46526521000005243.

During the field research, the temperature of ready-to-eat foods that require hot storage, such as fried or baked snacks, pies, and pasties, was measured with the consent of the food handler. This was done using a digital infrared thermometer with a laser sight (brand KLX, model GM320, with a temperature range of -50 °C to 380 °C and precision of 1.5 °C). This activity was only carried out with the consent of the handler, which is why only 13 foods were measured.

The data collected was treated statistically from a semi-quantitative perspective to determine whether there is a relationship or agreement between the groups of topics analyzed, based on the assumption that each topic can be considered an ordered nominal variable[26]. And to verify the association between the variables, the results were evaluated using exploratory descriptive statistics, through the frequencies of the variables analyzed and Fisher's Exact Test, considering a 5% significance level ($p < 0.05$)[27].

RESULTS AND DISCUSSIONS

Socio-economic profile of food handlers at gastronomic fairs in the municipality of Niterói

The public of food handlers analyzed was made up of 66% of people aged between 30 and 59 (Table 1). These data are consistent with results found in other studies in Brazil and Latin America. In Port-au-Prince (Haiti), 59% of the participants analyzed were under the age of 35[28]. In the cities of Florianópolis, Salvador and Fortaleza (Brazil), Santo Domingo (Dominican Republic), Mexico City, and Culiacán (Mexico), an average age of 40 was reported for the population who sell street food[29,30,31,32].

These findings show that the workers in this segment are in the economically active age group, and that street food represents an important means of work that generates income.

These characteristics of street food sales are similar in developing countries.

The group analyzed in this study was mostly made up of women, 68.1% (Table 1), and corroborates the results found in other previous studies in the city of Salvador, Bahia (Brazil)[30], in Port-au-Prince (Haiti)[28], and in Addis Ababa (Ethiopia)[9]; which showed the prevalence of the female public at 55.9%, 88.7%, and 76.9%, respectively. These data show that street food vending is predominantly carried out by women. This can be explained by the nature of the activity of producing and selling street food in Latin and African culture, where food preparation is the responsibility of women[36]. In addition, street food is often the only alternative source of work for many women[34].

However, dissonant results are reported in Bangladesh[35], Taiwan[36], and India[37], with 93.0%, 57.5%, and 88.0% men, respectively. The higher percentage of men working in this market segment in these countries may be due to the culture of patriarchy[35], which is structural in these societies.

The predominant family income reported was between R$ 2,863 and R$ 5,724 (Table 1). This income range is higher than that reported in the literature[29,30,37], which shows a monthly family income of between one and three minimum wages for this group. Regarding the level of education, most of the handlers analyzed, 51.1%, reported having completed higher education, which shows a change in the educational level of the public working in this segment over the years, since previous studies did not find handlers with this level of education[9,29,31,37].

Both the level of schooling and family income observed in this study diverge from the scientific literature and are higher than expected[9,21,22,28,35,36,37], both in studies carried out in Brazil and those conducted at global level. Not only that, but when we look at the association between gender and schooling, we see that 72.0% of women have completed higher education (Table 1).

According to the Continuous National Household Sample Survey (PNAD Contínua) 2019[38], there was an increase in the educational level of the Brazilian population over the age of 25 between 2016 and 2019, with an increase in the number of people with complete secondary education (27.4%) or incomplete higher education (4.0%) and complete higher education (17.4%)[39], however more than half of adults (51.2% or 69.5 million) did not complete this stage of study. In this way, this data elucidates the divergence found, since income tends to be proportional to the level of schooling[40]. Although not everyone gets a formal job.

With regard to time in business, 44.7% of people reported having been in the street food trade for more than five years (Table 2). This data corroborates the results found in other studies which showed an average time spent working in this market segment of over five years, in Santa Catarina (Brazil)[29], Bahia (Brazil)[30], Ethiopia[9]; India[37], Bangladesh[35], and Haiti[28].

According to the Brazilian Institute of Geography and Statistics (IBGE), there was a sharp increase in the street food trade between 2012 and 2017, jumping from 98,400 to 501,300 people working in this sector[44]. A similar result was observed by Brinkley[41] in 2020, in the USA, when he analyzed the growth of street food sales during the COVID-19 pandemic in New York City. The increase and perseverance of the street food trade is intrinsically related to the prospect of financial maintenance, concomitantly with the difficulty of insertion or repositioning in the formal market, due to the scarcity of job vacancies, the lack of labor qualification or adequate education[7,30]. According to Silva's study in Bahia (Brazil)[30], street food is the only source of income for 29.1% of the street vendors analyzed and, therefore,

Table 1. Distribution of food handlers at the fairs studied according to socio-economic data.

Variable	Category	Absolute number (n = 47)	Frequency (%)
Gender	Female	32	68.1
	Male	13	27.7
	LGBTQIA+	1	2.1
	Non-binary	1	2.1
Age	18-29 years	4	8.5
	30-49 years	21	44.7
	50-59 years	10	21.3
	> 60 years	12	25.5
Level of education	Complete primary education	2	4.3
	Completed high school	12	25.5
	Incompleted higher education	5	10.6
	Completed higher education	24	51.1
	Postgraduate	4	8.5
Monthly family income	Up to R$ 1,908	8	17.0
	From R$ 1,909 to R$ 2,862	8	17.0
	From R$ 2,863 to R$ 5,724	18	38.3
	From R$ 5,725 to R$ 9,540	9	19.1
	From R$ 9,541 to R$ 14,310	2	4.3
	Above R$ 14,311	2	4.3

Source: Prepared by the authors, 2022.

the only means of family support. In Fortaleza (Brazil), Moreira et al.[34] reported that more than half of the street vendors analyzed mentioned unemployment as the main reason for working in the street food trade.

Regarding taking care of their own health, 51.1% of handlers said they had an annual medical check-up (Table 2). Similar results are shown in the 2019 National Health Survey (PNS), in which 76.2% of the population consulted a doctor in the previous year, although the proportion of women (82.3%) was higher than that of men (69.4%)[42]. The results obtained in the survey corroborate the data from the 2019 PNS, in relation to the association between gender and frequency of medical consultations and check-ups, in which 90.6% of women said they had a medical consultation and health check-up annually, compared to 66.7% of men. Food handlers should have their health checked regularly to prevent them from becoming a vehicle for the transmission of pathogenic microorganisms, since these workers have a major impact on the quality of the food. Although there is no specific legislation for the street food segment in Brazil, RDC 216/2004, in the formal sector, recommends removal from activities when handlers present injuries and/or symptoms of diseases that generate a risk of food contamination[10], however, many handlers continue to produce food, even when they present flu-like symptoms, gastrointestinal symptoms and hand injuries, as can be seen in Table 2.

Regarding the level of knowledge about hygiene and health aspects, 46.8% of the handlers had never taken a GFHP course, despite the fact that many of them had been working in this activity for more than five years (Table 2). Similar data was found nationwide in Santa Catarina[29] and Minas Gerais[38] and it was reported that 46.0% and 51.2% of handlers had never taken a GFHP course, respectively. On the other hand, in other parts of the world this figure is even worse. In Bangladesh[22], 52.0% of street food vendors have no formal education; in Port-au-Prince (Haiti)[28], 78.7% have never taken a GFHP course.

According to Garcia and Centenaro[43], the periodic training of food handlers is essential to increase their level of knowledge about GFHP, with the aim of ensuring the safety of the final product. In addition, the lack of formal training in food hygiene, together with work carried out in unsuitable conditions, can lead to food poisoning through microbiological contamination[43].

Hygienic and sanitary practices in the street food trade

Regarding hygiene aspects during the food trade (Table 3), it was possible to observe, based on the script drawn up, the obvious health risk that can compromise the quality of the food sold. The absence of hair protection, beards in men, and the use of adornments present a great risk of physical contamination of the food. These results are similar to those found by Alves da Silva[30] and Moreira[31], in Bahia and Ceará (Brazil).

Fairs are a favorable environment for food contamination and FBD outbreaks, due to the physical structure conditions that make it impossible to strictly control the handling environment, temperature control, and inadequate display of food for sale, as well as its storage conditions, as reported by Ferreira[44], in the city of São Paulo, Brazil. In this way, the hygiene and conduct of food handlers must be controlled in order to guarantee food safety and prevent contamination[45].

Table 2. Knowledge and conditions of food handling during production.

Variable	Absolute number (n = 47)	Frequency (%)
Has worked in this activity for more than five years	21	44.7
Has never taken a Good Food Handling Practices course	22	46.8
Produce in your own kitchen	22	46.8
Finds the production site suitable	44	93.6
Do you consider the food you sell safe	44	93.6
Doesn't know and/or doesn't have access to a hand-washing sink at the fair	15	31.9
Performs medical check-ups (exams and consultations) annually	24	51.1
Works with gastrointestinal symptoms	22	46.8
And self-medicates	21	44.7
Works with flu-like symptoms	26	55.3
And self-medicates	22	46.8
Works with cuts/bruises/burns on hands	37	78.7
And bandages	24	51.1

Source: Prepared by the authors, 2022.

Table 3. Food handling and display conditions during marketing.

Variable	Absolute number (n = 61)	Frequency (%)
Does double duty (cashier and food handler)	53	86.9
No hair protection	43	70.5
Wears rings and/or earrings	53	86.8
Has beard (man)	17	70.8
No apron/coat	45	73.8
Talking during handling	39	63.9
No proper hand asepsis with 70° alcohol	45	73.8
Food exposed to sunlight	29	47.5
Food stored at room temperature, without any temperature control	36	59.0
Food packaged without any identification	19	50.0

Source: Prepared by the authors, 2022.

Table 4. Measured temperature of hot preserved food at the fairs analyzed.

Temperature in degrees Celsius	Absolute number (n = 13)	Frequency (%)
Between 40 °C and 49 °C	3	23.1
< 40 °C	10	76.9

Source: Prepared by the authors, 2022.

The WHO[46] and FAO[47] have promoted studies and consultations with developing countries, with the aim of analyzing the street food trade systems in place, identifying priority areas that need support and intervention, providing guidelines for regulation and analyzing aspects related to the health safety of these foods. The actions are carried out through WHO regional offices in partnership with regulatory bodies. These actions demonstrate the importance of defining policies and regulations for this trade, which has a strong economic inclusion appeal for the population, especially those on the margins of society[48].

Regarding the role they play in food marketing, 86.9% of the handlers play a dual role, i.e. they handle money and food during the course of their work. This result is similar to that presented by Ferreira[44], in São Paulo, and by Wormsbecker[29], in Santa Catarina, Brazil. The activity of receiving money and cards should not be assigned to employees who work as food handlers, as it is a practice that could contaminate food[10]. However, this condition becomes unfeasible for those handlers who work alone in the food trade, which requires them to carry out the two essential activities: delivering the product to the customer and receiving the amount for the sale made. In this case, the handler must adopt more appropriate hygienic-sanitary practices, such as using tongs or other utensils to deliver the product that is not sold packaged, and standardizing operations by delivering the product before receiving payment, with subsequent hand hygiene with 70° alcohol. In addition, there is the option of online payment, which was significantly consolidated during the COVID-19 pandemic and is still in force today. Although there are no studies on this topic specifically, it is possible to use and adapt the knowledge of GFHP for decision-making and the establishment of standard operating procedures during the production and handling of food in order to ensure the safety of the product offered to the population.

Another important factor observed was the lack of identification on packaged foods. According to RDC No. 727/2022, food packaged in the absence of consumers must contain the name under which it is sold, identification of its origin, list of ingredients, net weight, expiry date, conservation and shelf life after opening the package, preparation instructions, nutritional labeling, and warnings about the presence of lactose, gluten, and food allergens[49], since without this necessary information it is impossible to analyze whether the food is fit for consumption, as well as the description of possible allergens.

The temperature measurement, which was carried out with the consent of only 13 of the handlers taking part in the survey, showed that 100% of the hot food was below 50 °C. The results are shown in Table 4.

In addition, 47.5% of the food observed was exposed to sunlight and 59% was without any kind of temperature control, being stored at room temperature in non-thermal plastic boxes, display cases, or exposed in its own packaging. Temperature plays a fundamental role in microbial multiplication and can stimulate growth, inhibit or even eliminate microorganisms, depending on the cooking technique used[50]. In this way, temperature control is an extremely important tool for maintaining the quality of the food produced and sold, which is not properly controlled by the street food handlers surveyed here.

The sale of street food poses a challenge in terms of food preservation, especially those with a higher health risk, such as animal products, mixed foods and water, according to data

Table 5. Environmental data and working conditions of street food handlers in the municipality of Niterói.

Variable	Absolute number (n = 5)	Frequency (%)
Lack of waste collectors near the fair	2	40.0
Presence of animals and/or vectors	2	40.0
No toilet for handlers	2	40.0
Unsuitable flooring/water accumulation	4	80.0
Fair site close to the flow of vehicles	4	80.0

Source: Prepared by the authors, 2022.

from the Health and Environmental Surveillance Secretariat[50]. Associated with this factor, the lack of financial resources to buy equipment for preserving ready-made foods, the marketing environment, and the lack of knowledge about this risk, make these foods a potential source of etiological agents of food-borne diseases[51].

The lack of electrical outlets prevents the use of equipment such as stoves and refrigerators for better temperature control. However, there is the possibility of using *réchaud* or stoves, isothermal boxes, and reusable ice for cold storage. However, the cost and difficulties of transporting this equipment are obstacles that make it difficult to control the temperature at which food is kept. RDC No. 216/2004 recommends that food should be kept refrigerated below 5 °C for up to five days if served cold or above 60 °C for up to 6 hours if served hot[10]. Therefore, if the food is outside this temperature range, its exposure time must be strictly controlled, making it as short as possible, since outside the safety temperature, the growth of microorganisms will be favored, even if the production process has been adequate[52].

The physical structure observed at the fairs (Table 5) prevents the environment from having adequate conditions to guarantee the hygienic and sanitary quality of the food. In addition to the lack of electricity already mentioned, the absence of a toilet with a sink for washing hands was observed in 40% of the fairs. A similar situation was found by Souza[53] in Minas Gerais, Brazil, where 73% of street food vendors used toilets close to their place of work, such as in churches, universities, hospitals, and other commercial establishments. In the absence of appropriate sanitary facilities, handlers face difficulties in meeting their physiological needs in suitable places and in carrying out hand hygiene correctly. This situation becomes even more alarming, especially considering that most handlers do not follow the proper practice of hand asepsis with 70% alcohol.

The WHO has published a code of practice for street food vending, which includes the provision of a local physical structure, water supply or guidance on water conditioning if this is not possible, lighting support, solid waste collection and sanitary facilities approved by the local authorities, among other guidelines, with the aim of guiding and assisting the structuring of these services by government authorities[47].

The work carried out highlights the complexity of the street food segment, addressing issues ranging from regulation to the infrastructure of places of sale, knowledge about good practices in food manufacturing and marketing, and the need for workers to be included in this labor market, even in an informal way. It is therefore crucial to establish political strategies aligned with the needs of these workers, with a view to implementing actions for the development and sustainability of this market, given its economic, social and cultural importance.

CONCLUSIONS

This work made it possible to get to know the socio-economic profile, the hygiene and sanitation practices of street food handlers, and the physical and functional conditions of street markets in the municipality of Niterói. In addition, important partnerships were established, such as the agreement with VISA, SEDEN, Casa da Cultura, and Casa do Artesão, which are owned by the Niterói City Council, and the cooperation of the fairs' coordinators.

Street food marketing goes beyond gastronomic activity by promoting leisure, valuing food culture and local producers and by being an important source of income for the handlers. However, health surveillance actions in the city of Niterói focus on licensing, inspection, health inspection, response to complaints and health education. Regarding the street food trade, health surveillance focuses on educational activities.

It is necessary to understand the potential health risks associated with the street food trade, in order to mobilize attention for strengthening the actions of the competent authorities - both the health surveillance department and the city council - with a view to finding ways and means of ensuring a safe, regulated food trade with operating guidelines, in which sanitary and structural aspects from a physical-functional point of view, with the valorization of workers through public policies and training and orientation programs on legal and sanitary issues, are provided for its operationalization, thus resulting in the prevention and promotion of the population's health.

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Authors' Contribution

Medeiros MGGA - Conception, planning (study design), acquisition, analysis, data interpretation, and writing of the work. Petrucci Junior R., Coelho NCM - Acquisition, analysis, data interpretation, and writing of the work. Castro JSM - Conception, planning (study design), analysis, data interpretation, and writing of the work. Lourenço MS, Penha MP - Planning (study design), analysis, data interpretation, and writing of the work. Santos EF - Planning (study design), acquisition, and writing of the work. All the authors approved the final version of the work.

Conflict of Interest

Authors have no potential conflict of interest to declare, related to this study's political or financial peers and institutions.