



## Street food on the coast of Salvador, Bahia, Brazil: A study from the socioeconomic and food safety perspectives



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### ABSTRACT

Street food includes various food items and drinks largely sold in public places, including leisure areas such as beaches. Despite the prevalence at this activity studies made within this scenario are few. Therefore, this study sought to characterize street food commercialization on the Salvador coast in Bahia, Brazil based on the socioeconomic, labor, and food safety perspectives. An exploratory and quantitative study was conducted on 14 beaches using questionnaires addressing the following areas: the socio-demographic characteristics of the food vendors, characteristics of the work, and hygienic and sanitary conditions of the activity. Our study included 247 food vendors with an average age of 40.3 years, of whom 55.9% were women, and 48.7% had completed an elementary education or less. The median time spent working in street food vending was nine years, and the average working day for the participants was 8.3. Furthermore, 46.2% of the participants worked only on weekends and 72.0% declared that their family income was between one and three times the minimum wage, of whom 29.1% had revenue from a source other than street food vending. Most of the vendor locations were fixed (57.5%), and the products sold were typically obtained from supermarkets (48.1%), suppliers (36.8%), and street markets (36.0%). Prepared food items were the most common (61.6%), although mineral water/soft drinks (35.8%) and beer (35.2%) were also commonly sold items, followed by *acarajé* (21.9%), coconut water (19.0%), fried fish (14.2%), and *abará* (12.5%). Only 38.3% of the perishable food items were kept in cooling containers. Of the interviewed individuals, 22.6% declared that they did not sanitize their hands when working, whereas 80.2% admitted to handling food and money simultaneously. Our study reveals the socioeconomic importance of the street food sector as well as the poor hygienic conditions of most street food vendor operations.

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### 1. Introduction

World Health Organization (WHO, 1996) defines street food as foods and beverages prepared and/or sold by vendors in streets and other public places for immediate consumption or consumption at a later time without processing or preparation.

From the economic point of view, street food corresponds to the informal sector and has exhibited remarkable development in the last decades as a function of worldwide socioeconomic changes and

the urbanization and population growth exhibited by some countries (Chukuezi, 2010a; Omemu & Aderoju, 2008; Rodrigues et al., 2003; WHO, 1996).

The significant socioeconomic influence of street food with respect to income and as a potential source of work, particularly for women, is widely acknowledged. Street food vending is also thought to make food available at affordable prices to low-income groups. Therefore, as a function of its low cost, street food represents an easily accessible nutritional and dietary option, based on the physical availability and social points of view (Cardoso, Santos, & Silva, 2009; Muzaffar, Huq, & Mallik, 2009).

Street food such as meals, beverages, and snacks exhibit a large variation in their ingredients, processing, selling methods, and consumption, which often reflect the local traditional culture. As a

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function of convenience, street food provides an important fraction of the urban diet, particularly in developing countries (FAO, 2001; FAO, 2010).

Several studies on the sanitary quality of street food in Africa, Asia, and Latin America showed transmission of food pathogens (Abdallah & Mustafa, 2010; Costarrica & Morón, 1996; Haryani et al., 2008; Kubheka, Mosupye, & Von Holy, 2001; Mahale, Khade, & Vaidya, 2008). As a function of the consequent public health risk, the United Nations Food and Agriculture Organization (FAO) and the WHO established international guidelines adapted to the various continents based on feasibility to ensure the safety of street food that is sold and consumed (FAO, 2010).

Among the various settings of the street food business in Brazil, the street food niche found near beaches has particular relevance because it caters to the food needs of out-of-town visitors and is a source of income for thousands of individuals. According to Souza and Lage (2008), although the Brazilian beaches represent an important source of work and income for large population groups and a major strategy of survival for the poorest inhabitants of coastal towns, the number of studies on this subject is very low, and consequently little is known regarding the industry of street food vending.

In Salvador, street food is a part of everyday life and is ubiquitous at leisure areas such as beaches. A wide variety of foods are offered to customers varying from typical local foods to foods typical of other areas. Since 2010, when food kiosks were demolished, street food became virtually the only source of food near the beachfront area.

Based on the importance of this economic activity, general concerns with food safety, and the scarcity of studies addressing socioeconomic and hygienic issues in the street food industry, the aim of the present study was to investigate the socioeconomic, labor-related, and food safety features of the street food business at the beachfront of Salvador, Bahia.

## 2. Materials and methods

### 2.1. Geographical area and vendors

A cross-sectional study on street food vendors over the age of 18 selling at 14 beaches of the Salvador, Bahia (Brazil) beachfront between November 2010 and April 2011. In compliance with Resolution 196/96 (Brazil, 1996), the original project was approved by the Research Ethics Committee of Clímério de Oliveira Maternity Hospital at the Federal University of Bahia.

### 2.2. Data collection

Itinerant sampling was performed to compose the study population (Garin et al., 2002). Data collection was based on a previously tested semi-structured questionnaire, whose questions were pre-tested and adjusted (Babbie, 2005; Quivy & Campenhoudt, 1998) with seven vendors in two beaches of the city, to allow better application of the instrument and data tabulation. The final version of the questionnaire was organized in 47 questions, with six categories of questions: vendor identification and sociodemographic characteristics (gender, age, marital status, educational background, occupation, and others); work history (length of time selling on the beach, local trade, working hours, days worked, income etc) characteristics/structure of the point of sale (type of point of sale, hygiene of the place, packaging and utensils, water availability etc); food profile, method of acquisition, and storage (origin of the product, reason for choice of food/drinks, locale of purchase of goods, storage location, etc.); hygienic and sanitary features (personal hygiene of seller, handling/finishing at point of

sale, frequency of cleaning of utensils and hands, products used in cleaning, handling food and money simultaneously etc.) and opinions (about actions of regulatory agencies, trade supervision and hygiene of food).

The points of sale were visited personally to address the questionnaire items that required direct inspection (e.g., structure and procedures for handling food), and the vendors were interviewed to address the remaining questionnaire items that required their contribution (e.g., personal data and opinions). The vendors agreed to participate in the questionnaires by signing an informed consent form.

The completion of the questionnaires was conducted by trained and supervised student interviewers (undergraduate and post-graduate), who recorded information using the following procedures: direct observation on site in the case of issues pertaining to infrastructure and habits (for example, characteristics about the point of sale and handling practices) and questions to the participants in the case of issues of specific knowledge (for example, personal data and opinion questions).

Data collection occurred on weekends, Saturdays and Sunday, due to the higher flux of consumers and vendors on the beaches. The time period of the research team was about 3 h/day, from 10 h to 13 h. We approached all sellers found in the determined expanse of the beach, in the time previously set, and interviewed those who agreed to participate in the study.

### 2.3. Statistical analysis

Software EPI-Info version 6.04d and “Statistical Package for the Social Sciences” – SPSS version 13.0 were used to maintain the database and for data analysis. All variables were subjected to descriptive analysis; measures of central tendency (mean and median) and dispersion (amplitude) were used for continuous variables, and bivariate regression (chi-square test) was used for the variables of interest (gender and income, gender and headed households). The level of significance was established as having a *p*-value of 0.05.

## 3. Results and discussion

### 3.1. Socioeconomic traits of vendors

Table 1 shows the social and economic description of the 247 street food vendors who participated in the study.

The sample population was comprised mostly of females, which is consistent with the results of previous studies by Muyanja et al. (2011) in Uganda, Chukuezi (2010a) in Nigeria, Donkor, Kayang, Quaye, and Akyeh (2009) in Ghana and Mensah, Yeboah-Manu, Owusu-Darko, and Ablordey (2002) in Ghana, which pointed out a female predominance of 87.6%, 66.67%, 98.4%, and 100%, respectively.

However, conflicting results have also been reported by Choudhury, Mahanta, Goswami, Mazumder, and Pegoo (2011) in India, Benny-Olliviera and Badrie (2007) in West Indies, and Muinde and Kuria (2005) in Kenya, who reported 88%, 61.7% and 60% males, respectively.

One of the advantages of the street food business is the income it can provide to a large fraction of the population, particularly the women, who can combine street food vending with the demands of family life (FAO, 2005; WHO, 1996). In addition, the resulting income seems crucial to mitigate the food concerns associated with the poorest families often headed by women.

Most vendors were considered part of the economically active population, although older adults (7.7%) also participated in street food vending. Studies performed by Cardoso et al., found an average

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