

Study on Hygienic Practices of Street food vendors in Bangalore City**S. Divya¹, R. Murali¹, Shamala A¹, Mansi Y¹, Punith Shetty¹, Zahar Unnissa¹**¹Department of Public Health Dentistry, Krishnadevaraya College of Dental Sciences and Hospital, International Airport Road, Hunasamaranahalli, Bangalore, Karnataka, India.**Address for Correspondence:**

Dr. S. Divya, Department of Public Health Dentistry, Krishnadevaraya College of Dental Sciences and Hospital, International Airport Road, Hunasamaranahalli, Bangalore, Karnataka, India.

ABSTRACT:

Background: Street foods are foods and beverages prepared and sold by vendors in streets and other public places for immediate consumption. The hygienic practices during cooking, storing, serving are compromised and are increasingly becoming a public health risk to the consumer; hence this study was conducted with the aim to assess the hygienic practices of street food vendors in Bangalore city.

Method: A descriptive survey was conducted among 30 street vendors in Bangalore city using convenience sampling method to elicit information on the process of cooking, serving of foods, hygienic practices and waste disposal practiced.

Results: The present study explored the food safety and hygienic practices of street food vendors. It was seen that 83% of the vendors continued food preparation even during illness. Only 17% of the participants prepared the food freshly every time. 56% of them chewed tobacco while serving the food. Only in 37% of the cases the vending sites were relatively clean.

Conclusion: Present study proved that food prepared and served at the street outlets is unhygienic which can lead to water and food borne illnesses.

Keywords: Hygienic Practices, Street Food, Vendors.

INTRODUCTION

Street foods are ready to eat foods and beverages prepared and sold by vendors, on streets and other public places.¹

According to the Food and Agriculture Organization, 2.5 million people eat street food every day. There has been an increasing trend towards consumption of street foods during the recent years. Vendors usually gather in overcrowded areas and in such areas there is limited access to basic sanitary facilities.

Apart from this, it is generally observed that unconventional methods of processing and packaging are practiced during food processing. According to WHO (1989), food handling personnel play a key role in ensuring food safety throughout the chain of food production and storage.²

Mishandling and ignorance of hygienic measures on the part of the food handler enabled a large number of pathogenic bacteria to come into contact with food and in some

cases these survived and multiplied in sufficient numbers to cause illness in the individual. The hands of food service employees can be vectors in the spread of food borne diseases because of poor personal hygiene or cross-contamination. In addition unhygienic practices in food storage, handling, and preparation can create an environment in which bacteria and other infectious agents are more easily transmitted. Moreover, inadequate time for cooking, temperature control and cross contamination are responsible for food poisoning outbreaks.³

Possible sources of the microbial contamination which have been identified are unhygienic handling of food, inadequate cleaning of the utensils used for cooking and serving, vendors hands and airborne contamination.⁴

In face of the rising population accessing street food, the present study was conducted to survey the hygiene and sanitary practices of street food vendors in Bangalore city

METHODOLOGY

Study design: A descriptive survey design was used to gather data regarding food hygiene and sanitation practiced by street food vendors in Bangalore city.

Study setting: It was conducted among 30 street vendors in Bangalore city using convenience sampling method

Selection of participants: 30 street food vendors of Bangalore city were randomly selected for the study to elicit information on the process of cooking, serving of foods, hygienic practices and waste disposal practiced

Data collection: Survey tool consisted of a closed ended questionnaire containing 19 questions related to food hygiene and sanitation practiced by vendors of street foods (Table 1). Information from process of cooking to disposal of foods was collected. There were 4 questions related to the process of cooking regarding the preparation of foods and hands before cooking, regarding food processing during illness. Five questions were related to the serving of food in which data regarding the way the foods were served was collected. Eight questions were related to hygienic practices of the food vendors and 2 questions were related to disposal of the foods.

Statistical analysis: Data was compiled using Microsoft excel spread sheet. Descriptive statistics were used to present the findings of the study

Ethical Approval: Ethical Approval was obtained from the institutional review board of Krishnadevaraya College of Dental Sciences, Bengaluru.

RESULTS

Table 1 shows the distribution of street vendors based on their process of cooking. It is seen from the table that 60% of the street vendors did not wash the food stuff before cooking. 73% of the participants did not wash their hands before cooking. 83% of them processed the food even during illness like cold and fever. Only 17% of the participants prepared the food freshly every time.

Table 1: Distribution of street vendors based on their process of cooking

S. No	Process of cooking	Yes (%)	No (%)
1)	Food stuff washed before cooking	40	60
2)	Washing of hands before cooking	27	73
3)	Food processed during illness (cold & fever)	83	17
4)	Food was prepared freshly every time	17	83

Table 2 shows the distribution of street vendors according to the method of serving foods. Eight seven percent of the vendors did not cover the foods prepared. In 80% of the cases more than a single person was involved in serving. Only 30% of the participants served the food in disposable plates. 56% of them chewed tobacco while serving the food.

Table 2: Distribution of street vendors according to the method of serving food

S. NO	SERVING OF FOODS	Yes (%)	No (%)
1)	Food covered before serving	13	87
2)	More than one person involved in serving	80	20
3)	Serving of foods with gloved hand	17	83
4)	Foods served in disposable plates	30	70
5)	Chewing tobacco while serving food	56	44

Table 3 shows the distribution of street vendors based on hygiene practices followed. 80% of the street vendors did not use aprons. Only 20% of them had trimmed finger nails. 80% of them collected money without washing hands in between the servings. 80% of them used the same cloth to wipe hands in between the servings. 86% of them reused the same water to wash the crockery. Only in 37% of the cases the vending sites were relatively clean. 93% of the vendors used mouth to blow air into the polythene before using it to package foods.

Table 4 shows the waste disposal practices followed by street vendors. Eight percent of

the street vendors utilized the leftover food for the next day. Only 37% of them used a separate dustbin to dispose of the foods.

Table 3: Distribution of street vendors based on hygiene practices followed

S. No	HYGIENIC PRACTICES	Yes (%)	No (%)
1)	Aprons used	20	80
2)	Clean/trimmed finger nails	20	80
3)	Collection of money without washing hands in between serving	80	20
4)	Used the same cloth used to wipe hands in between servings	80	20
5)	Use of disposable plastic hand gloves	17	83
6)	Cleaning of crockery with clean water and soap	14	86
7)	Surrounding of vending site is clean	37	63
8)	Use of mouth to blow air into the polythene to open it before using it to package foods.	93	7

Table 4: Disposal wise distribution of vendors

S. No	DISPOSAL OF FOODS	Yes (%)	No (%)
1)	Left over of food is utilized for the next day	80	20
2)	Waste disposal method in separate dustbin	37	63

DISCUSSION

The present study explores the food safety and hygienic practices of street food vendors in Bangalore city.

Personal hygiene, health and food handling practices were observed which showed that out of 30 vendors chosen for the survey, 83% of the vendors continued food preparation even during illness and 17% avoided food preparation during cold, fever and other illness. These results were in accordance with the study conducted by Chirag Gadi et al² in Allahabad, which showed 73.3% of the food vendors continued food preparation during illness. Bhaskar et al (2004) reported that food preparation during illness can transmit pathogenic bacteria from vendors to the customers.

60% of the vendors in the present study did not wash the food stuff before cooking and the reason cited was shortage of water. The present study showed similar trends with the one conducted by Nurudeen et al⁵ in North Nigeria where 73.6% of them did not wash the raw foods before cooking. Acute diarrhoeal is a very common illness worldwide and is estimated to account for about 1.8 million childhood deaths annually in developing countries (WHO, 2005) and one of the methods by which it can be prevented is by safe hygienic practices such as washing foods prior to cooking.

Only 30% of the street vendors in the present study used disposable plates to serve foods which was similar to the findings of Chirag et al² where 26.6% of them used disposable plates to serve foods.

In the study conducted by Chirag et al² 40% of the vendors were chewing tobacco during food handling which showed similar trends with the present study (56%).

20% of the street vendors in the present study used aprons which was in contrast to the study conducted by Rayza et al⁶ in Brazil which showed 42% of them using aprons. Paulson D. S. (1994) reported that outbreaks are generally caused by foods due to poor personal hygiene of the vendors.

Study conducted by Abdalla et al⁷, 2009 in Sudan found that 38% of the food was sold uncovered. This was in contrast to the present study where a higher percentage of vendors (87%) left the food uncovered before serving. 20% of them had clean trimmed finger nails, which showed a different trend from the study conducted by Nurumeen et al⁵ where more than half (58.2%) of the respondents kept their finger nails clean.

The street vendors in the present study did not follow proper waste management technique (63%) which was in accordance to the study conducted by Rayza Dal⁶ et al (44%). This indicates a lack of awareness about the proper disposal of waste among street vendors in the present study. Unhygienic surroundings like sewage, improper waste disposal system, and

inadequate water supply further increases the food contamination (Chumber et al, 2007).

LIMITATIONS

Small sample size and cross sectional study design are the limitations of the study.

However based on the results of the study, the following recommendations has been proposed:

RECOMMENDATIONS

Food must be prepared in hygienic conditions and in accordance with strict food safety rules. People involved in handling food must be given adequate training in food hygiene.

Basic training in food hygiene is recommended to ensure that food vendors follow the required rules for proper hygiene and sanitation.

Training on hygiene and sanitation; provision of continuous food safety education; the establishment of code of practice for the street food industry; and provision of basic water and waste management utilities will help to diminish this gap between knowledge and practices of safe street food vending.

The Sanitary and Hygienic Requirements for Street Food Vendors was given by the Food Safety Standards Act – 2011. The act stressed on the maintenance of clean vending premises, food handling and storage standards and safe food from infections.

There should be more rigorous monitoring and surveillance system by the Commissioner of Food Safety in the respective States.

CONCLUSION

Present study has proven that the food that is prepared and served at these street outlets is unhygienic, which can lead to waterborne and food borne illnesses. Unhygienic surroundings like sewage, improper waste disposal system, and inadequate water supply attracts houseflies and rodents which further lead to increase in food contamination.

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