



Original Article

# Food Safety among Food Vendors in Chennai City-A Cross Sectional Survey

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**Background:** Every year, the World Health Organization selects a priority area of global public health concern as the theme for World Health Day, which falls on 7 April, the birthday of the Organization. *The theme for World Health Day 2015 is Food Safety*, a theme of high relevance to all people on the planet, and multiple stakeholders, including government, civil society, the private sector, and intergovernmental agencies. Issues mostly caused by food borne microbial pathogens are the leading causes of illness and death in the developing countries, killing an estimated 1.9 million persons annually at the global level. Not Much information is available on knowledge, attitude and awareness of food safety among food vendors in Tamil Nadu and hence this survey was under taken with that aim.

**Material and methods:** This was a cross sectional questionnaire study conducted amongst the street food vendors of Chennai and kanchipuram. 149 food vendors operating in the major street, offices, colleges were randomly selected for the study. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 19.0 and responses were calculated in frequencies and percentages.

**Results:** 94.6% (n=141) had awareness about the Agmark regulations and 85.2% (n=127) of the respondents took a note of the expiry dates of the products used for cooking. 31.5% (n=47) of the vendors had no idea about the harmful effects of packed food. Awareness about various diseases like swine flu spreading through animals and birds was found in 92.5% (n=138) of the respondents. Only 1.3% (n=2) of them had an idea about various food related awareness programmes existing.

**Conclusion:** The need for improving the knowledge, attitude and practices among food vendors where by food safety and handling can be improved. Regular inspection of food service facilities is essential. There is also need for governmental support in establishing food safety.

**Keywords:** food safety, food vendors, food handling.

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## 1. INTRODUCTION

India is a rapid growing economy. Hence it also faces problem of rural –urban migration for employment opportunity. Due to this transition, food habits of people are getting affected. Nowadays, street food is becoming very popular and is in demand because it saves one's time and

energy as it is ready to eat.<sup>1</sup> Food contamination in developing countries is caused by many factors including traditional food processing methods, inappropriate holding temperature and poor personal hygiene of food handlers.<sup>2</sup> Every year, the World Health Organization selects a priority area of global public health concern as the theme for World Health Day, which falls on 7 April, the birthday of the Organization. *The theme for World Health Day 2015 is Food Safety*, a theme of high relevance to all people on the planet, and multiple stakeholders, including government, civil society, the private sector, and intergovernmental agencies.<sup>[3]</sup> World Health Organization (WHO) has developed five main keys to *safer food, which include keeping clean, separating raw and cooked food, cooking thoroughly, keeping food at safe temperature, and using safe water and raw materials* (WHO, 2007). these five keys to safer food are the immense importance in developing countries, and equipping food vendors in countries with such information could impact significantly on food safety.<sup>4</sup> Study also showed that street food consumers come from all level of society, from low income to high income groups. Even school children depend on street food (FAO 1997). Issues mostly caused by food borne microbial pathogens are the leading causes of illness and death in the developing countries, killing an estimated 1.9 million persons annually at the global level.<sup>[5]</sup> Not Much information is available on food safety among food vendors in Tamil-Nadu and hence this survey was under taken.

## 2. MATERIALS AND METHODS

The study area is parts of Chennai and kanchipuram. The area is populated with population estimated to be around 10 lakhs (approx). Parts of this area are characterized by poor hygienic environments which could poses serious health risk to street food. The mean daily temperature is 30 – 35 degree centigrade.

**Data Collection and Analysis:** This was a cross sectional study conducted amongst the street food vendors of Chennai with prior ethical clearance from institutional ethical review committee board. This survey was conducted to evaluate the knowledge, attitude and awareness of street food vendors towards food safety. Prior to starting the study the aim of this study was explained to the food vendors in the study area and who gave informed consent were included in the study.

To determine the sample size required for the study with a power of 80%, the required prevalence rate was taken from a previously published article. After sample size estimation, the required sample size based on 80% power was 120. However a total of 149 subjects were included. 149 food vendors operating in the major street, offices, colleges were randomly selected for the study. It was explained that they need not reveal their identity. Questionnaire consisted of 24 questions. Some of them were open ended questions as well. The data collection focused primarily on knowledge of

health and personal hygiene, food safety practice, type of food sold, information about the establishment, their knowledge about agmark, expiry date, laws and orders on food safety, cleaning the meat and cooking area and their own practice of cooking food. Mixed approach i.e. quantitative and qualitative methodology was adopted to collect the data. Initially the questionnaire was pre-tested on 20 randomly selected food vendors. The questionnaire form was rearranged according to pre-test results and other recommendations (These pre-test results were not included in this study). The raw data was entered into MS excel sheet. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 19.0 and responses were calculated in frequencies and percentages.

## 3. RESULTS

**Among 149 study subjects, 110(74%) were males and 39(26%) were females. 101(68)% of the subjects had basic education.** 121(81.2%) were owners, 18 (12.1%) were in Charge and 10(6.7%) were employed in the food vending shops.

Table 1 gives the details of the various factors that were assessed in the study. Most of the vendors (n= 127, 85.2%) were doing food business between 10 to 20 yrs and work six days a week. Water source was present nearby in 74.5% (n=111) of the set up. 14.8% (n=33) of the shops had water nearby only for drinking. Most of the food vendors (75(50.3%)) use corporation water for cooking. 127(85.2%) of the respondents believed that meat should be cooked immediately and 22 (14.8%) respondents answered that meat should be cooked within 6 hours. 94.6% (n=141) had awareness about the agmark regulations and 85.2 % (n=127) of the respondents took a note of the expiry dates of the products used for cooking. 31.5% (n=47) of the vendors had no idea about the harmful effects of packed food. Awareness about various diseases like swine flu spreading through animals and birds was found in 92.5% (n=138) of the respondents. Only 1.3% (n=2) of them had an idea about various food related awareness programmes existing. Remaining 98.7% (n=147) never had any training or idea about the various programmes like Arokya DRF Plan.

## 4. DISCUSSION

Food is that which gives us energy. So its our prime response to handle it properly from its growing stage till we consume it. So while cooking, serving and eating hygiene of food should be maintained otherwise it is identified as the leading cause of the majority of foodborne diseases. Maintenance of hygiene of the Food depends upon pperson's knowledge regarding food, health and disease.

121(81.2%) were owners, 18 (12.1%) were in Charge and 10(6.7%) were employed in the food vending shops. Most respondents had worked in food services facility for more than five years. This is in acceptance to the study conducted by Tolulope et al.<sup>6</sup>

99.3% of the vendors have sufficient knowledge to ensure hygienic handling of food, such as the knowledge of hygienic handling of food, knowledge of dangers of contamination, storage and preparation. This is in accordance to the study conducted by Baluka et al, Ackah et al <sup>7,8</sup> However knowledge was not turned into safe practices not even by those vendors who had obtained formal training in food safety. Superficial knowledge leads to misconception and development of negative attitudes. <sup>5</sup>

**Table 1: Frequency distribution and percentage of various factors assessed in the study**

Variables	Category	Frequency (%)
Years of Business	1 Year To 10 Year	3 (2%)
	10 Years To 20 Years	127 (85.2%)
	20 Years To 30 Years	19 (12.8%)
Other Occupation	Same Job	34 (22.8%)
	Before Was Doing Different Job	115 (77.2%)
Position at Work	Owner	121(81.2%)
	In Charge	18 (12.1%)
	Employee	10(6.7%)
Experience	New Employees	37 (24.8%)
	Trained Employees	112 (75.2%)
Days of Work	7 Days	3 (2%)
	6 Days	127 (85.2%)
	5 Days	19 (12.8%)
Availability of Water	Yes	111(74.5%)
	No	5(3.4%)
	Only For Drinking	33(21.6%)
Source of Water	Tap Water	44(29.5%)
	Bore water	30(20.1%)
	Corporation Water	75(50.3%)
Type of Utensils	Open Type	41(27.5%)
	Closed Type	85(57%)
	Plastic	23(15.4%)
Washing of Vegetables	Yes	148(99.3%)
	No	1(0.7%)
Source of Meat	Local Market	133(89.3%)
	Shops	10(6.7%)
	Don't Know	6(4%)
Awareness About Swine Flu	Yes	138(92.5%)
	No	11(7.4%)
Storage of Meat	Cook Immediately	127(85.2%)
	Within 6 Hrs	22(14.8%)
Aware Cooked Meat Should Be Consumed Within 6 Hrs	Yes	145(97.3%)
	No	4(2.7%)
Agmark Regulations	Yes	141(94.6%)
	No	8(5.4%)
Expiry Date	Yes	127(85.2%)
	No	22(14.8%)
Packed Food Awareness	Yes	102(68.5%)
	No	47(31.5%)
Waste Management Facility	Yes	130(87.2%)
	No	19(12.8%)
Distance Of Waste Dumping	Within 1 Mts	57(38.3%)
	1 Mts	92(61.7%)
Cleaning The Surrounding	Before Selling	28(18.8%)
	After Selling	27(18.1%)
	Before And After	94(63.1%)

Aware About Arokya DRF Plan	Yes	24(16.1%)
	No	125(83.9%)
Training	Yes	2(1.3%)
	No	147(98.7%)
Changes After Training	Yes	2(1.3%)
	No	147(98.7%)
Policies On Food Safety	Yes	111(74.5%)
	No	38(25.5%)

% =Percentage

92.5% of the respondents had good awareness about food borne diseases. This was in acceptance with the study conducted by M.Anuradha et al <sup>9</sup> and Wai Yee Lin et al. <sup>10</sup> Food was stored in Open lid containers by 27.5% of the respondents. This was mainly for the ease of food handling. Environmental hygiene is important for food safety and necessary to support food handling.

85.2 % of the respondents used corporation water for cooking. This was not in accordance with the study conducted by Sylvester n et al where most of vendors used private bore wells. However in both studies the quality of water used was not determined before use. <sup>11</sup>

94 respondents (63.1%) had knowledge of the need to clean the surrounding before and after handling food. With respect to disposal of garbage, waste disposal area was present Within 1 Meters in 38.3% of the shops. Majority of the vendors used open lid bins for disposal. This was in acceptance to the study conducted by chander pal Thakur et al. <sup>1</sup> This study highlighted few points which need to be addressed for better hygiene status and food practices among vendors.

98.7% never had any training or idea about the various programmes like Arokya DRF Plan. This is similar to studies conducted by zain et al, cuprasittrut et al. <sup>12,13</sup>

Overall study showed that food vendors of chemmai have the knowledge regarding food hygiene. This was in agrremnet with recent study done among food handlers of Shah Alam, Selangor. <sup>[14]</sup>

## 5. CONCLUSION

Study showed the gap between knowledge and practice. If knowledge is not implemented then it s waste of having it. Hence there is a need for improving the knowledge, attitude and practices among food vendors where by food safety and handling can be improved. Regular inspection of food service facilities is essential. There is also need for governmental support in establishing food safety.

**Limitations:** Study involves limited samples. Larger samples should be taken into the study and each aspect of food safety need to be questioned in detail.

**Recommendations:** Continuous monitoring and periodic training involving the basic principles of food safety are required. Health education programmes among food vendors

needs to be conducted to improve their knowledge attitude and practices.

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