

## Original Research

# A Community Study To Assess The Personal Hygiene Among Food Vendors

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Received date: 9 January, 2024

Acceptance date: 5 February, 2024

### ABSTRACT

**Background:** The term "street food" refers to a wide variety of ready-to-eat foods and beverages sold and sometimes prepared, in public places. Street food may be consumed where it was purchased or can be taken away and eaten elsewhere. One of the frequent problems in the sale of street foods is their actual and potential hazard caused by bacterial contamination. The conditions under which street vendors operate are often undesirable for both the preparation and the selling of food. Poor personal hygiene frequently contributes to food-borne illness which indicates that food handlers' knowledge and handling practices need to be improved. Hence this study was conducted with the purpose to shed light on practice on personal hygiene among street food vendors and also to evaluate the impact of sociodemographic factors on Urban population in South Indian City.

**Methodology:** This study was conducted as a cross-sectional quantitative study design done among urban population in a south Indian city in Tamil Nadu. Around 110 food vendors were interviewed and included in this study. The Questionnaire was developed keeping in mind the objectives of the study.

**Results:** All the study participants washed hands after using handling waste or garbage and after using toilet. Only 26.4% wore head cap or gloves while handling food stuffs. 51.8%, 80% of the food vendors don't handle food stuffs during fever and while having infected cuts respectively. Large number of vendors (73.6%) wore gloves while handling food items. Among the study population, 64.5% (71) had bad practice of personal hygiene.

**Conclusion:** Food vendors should be adequately educated on the role of food in disease transmission as well as on rules of personal hygiene and approved practices in handling street food. Making safe food a top priority to prevent food-borne diseases, protect the health of your family and community, and being confident about the safety of the food you eat is utmost important. Food vendors should be adequately educated on the role of food in disease transmission as well as on rules of personal hygiene and approved practices in handling street food.

**Keywords:** Personal hygiene, Food vendors.

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### INTRODUCTION

The term "street food" refers to a wide variety of ready-to-eat foods and beverages sold and sometimes prepared, in public places. Street food may be consumed where it was purchased or can be taken away and eaten elsewhere.<sup>1</sup> Street foods reflect traditional cultures based on local products, as well as new dishes adapted to urban living conditions and the low incomes of many city dwellers. The street vendors provide a source of inexpensive, convenient and comparatively nutritious food. They are conveniently situated, either in the living areas, near the workplaces or en route for

thousands of commuters.<sup>2</sup> Street food vendors (SFVs) are characterized into two groups; mobile vendors and stationary vendors. Mobile vendors travel from place to place with prepared and packaged food intended for sale on their heads, carts, bicycles, motorcycles or tricycles. Stationary vendors have fixed stalls where food is prepared, stored and served to consumers. As street vending has proved to be a good source of income, requiring low capital investment, their numbers continue to increase. The street food vending sector of the economy has expanded in low and middle-income countries and provides access to a diversity of

inexpensive food for variety of customers.<sup>3</sup> One of the frequent problems in the sale of street foods is their actual and potential hazard caused by bacterial contamination. The conditions under which street vendors operate are often undesirable for both the preparation and the selling of food. Food-borne related illnesses have increased over the years, and negatively affected the health and economic well-being of many developing nations.<sup>3</sup> Mishandling and disregard of hygienic measures on the part of the food handlers may enable pathogenic bacteria to come into contact with food and in some cases survive and multiply in sufficient numbers to cause illness in the consumer.<sup>4</sup> There is inadequate supervision and proper monitoring by food safety officers and the enforcement of food hygiene regulation is weak; lack of training in food safety and good hygiene practices is also rife among food handlers. <sup>5</sup>Studies by FAO recorded poor knowledge, practices in food handling in the assessment of microbial contamination of food sold by vendors. The hands of food service employees can be vectors in the spread of food borne diseases because of poor personal hygiene or cross- contamination. Poor personal hygiene frequently contributes to food borne illness which indicates that food handlers' knowledge and handling practices needs to be improved.<sup>4</sup> Investigations of outbreaks of food-borne disease throughout the world show that, in nearly all instances, they are caused by the failure to observe satisfactory standards in the preparation, processing, cooking, storing or retailing of food.<sup>6</sup> Only few recent studies are available on personal hygiene among street food vendors .Hence this study was conducted with the purpose to shed light on practice on personal hygiene among street food vendors and also to evaluate the impact of sociodemographic factors on Urban population in South Indian City.

#### MATERIAL AND METHODOLOGY

This study was conducted as a cross sectional quantitative study design done among urban population in a south Indian city in Tamilnadu. Raja Muthiah medical college and hospital (RMMCH) under

Annamalai university located in this scenic place. This particular study carried out in urban Chidambaram. Street food vendors located in Chidambaram town were included in this study. Vendors mainly operate around bus stand, near temple and markets. These locations had the highest concentrations. The study was carried out for a period of 6 months. Food handlers who were not willing to participate were excluded from this study. Around 110 food vendors were interviewed and included in this study. The Questionnaire was developed keeping in mind the objectives of the study. Initially an English version of the questionnaire was developed and questions were interviewed in local language for better understanding of food vendors. The questionnaire was adjusted accordingly to make it clear and include the most relevant aspects of food vending in Chidambaram. Part I designed to determine the food handlers' socio-demographic characteristics" .Part II was framed for "assessment of personal hygiene" and included personal and observed habits of street food vendors which includes 22 questions. Ethical approval and clearance was obtained. Verbal informed consent was obtained from prospective respondents by explaining the purpose of the study and giving assurances about the confidentiality of the data. The data were captured in Microsoft excel spread sheets and imported into the statistical package for social sciences (SPSS), Version 24.

#### RESULTS

In our study 50 (45.5%) of the study participants belonged to the age group between 20 and 29 years followed by 30-39 years age group (n=34) and 23 vendors were more than 40 years age group. 75 (68.2%) were males. 74 (67.3%) studied up to higher secondary. 75 (68.2%) were married. In our study 67 (61.1%) of the shops sold meals/breakfast and rest sold chat items. 46 (41.8%) had experience between one to five years, 36 had experience of 6-10 years and rest 23 had experience more than 10 years. 27 (24.5%) earned less than 30,000 rupees per month and rest earned more than 30000 per month.

**Table I: Assessment of knowledge on Personal Hygiene on Study Population**

Sl. No.	Knowledge Questions	Yes (%)	No (%)
1	Do you wash your hands after handling waste/ garbage ?	110 (100%)	-
2	Do you wash your hands after using the toilet?	110 (100%)	-
3	Do you smoke near the business area?	4 (3.6%)	106 (96.4%)
4	Do you wash your hands after smoking, sneezing or coughing?	106 (96.4%)	4 (3.65%)
5	Do you wear a head cap during working?	29 (26.4%)	81 (73.6%)
6	Do you handle / process food stuffs when you have fever?	53 (48.2%)	57 (51.8%)
7	Do you handle / process food stuffs when you have infected cuts?	22 (20%)	88 (80%)
8	Do you remove your personal effects (eg rings, necklaces, hairpins)	31 (28.2%)	79 (71.85%)
9	While processing food stuffs?	19 (17.3%)	91 (82.7%)

10	Do you wear gloves while handling the food items?	29 (26.4%)	81 (73.6%)
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All the study participants washed hands after using handling waste or garbage and after using toilet. Majority (96.4%) don't smoke near the business area. Most (96.4%) washed hands after coughing, sneezing, smoking. Only 26.4% wore head cap or gloves while handling food stuffs. 51.8%, 80% of the food vendors don't handle food stuffs during fever and while having infected cuts respectively. Large number of vendors (73.6%) wore gloves while handling food items.

**Table 2: Observed Habits of Personal Hygiene on Study Population**

Sl. No.	Variables	Present (%)	Absent (%)
1	Hair cover	34 (30.9%)	76 (69.1%)
2	Cough / Sneeze/ Running Nose	17 (15.5%)	93 (84.5%)
3	Touching Mouth, Nose, Ears	31 (28.2%)	79 (71.8%)
4	Sweating	73 (66.4%)	37 (33.6%)
5	Nail	89 (80.9%)	21 (19.1%)
6	Nail Dirt	12 (10.9%)	98 (89.1%)
7	Gloves	35 (31.8%)	75 (68.2%)
8	Apron	23 (20.9%)	87 (79.1%)
9	Hand Washing	103 (93.6%)	7 (6.4%)
10	Slippers	80 (72.7%)	30 (27.3%)
11	Smoking/ Betel Nut Usage	8 (7.3%)	102 (92.7%)
12	Jewellery Usage	29 (26.4%)	81 (73.6%)

Only 30.9%, 31.8%, 20.9% practiced wearing hair cover, gloves, apron respectively. 93.6 % practiced hand washing. 72.7 % wore slippers. 7.3% smoked. 26.4% wore Jewellery during cooking. 15.5% had either coughed or sneezed or had running nose on the day of survey. 80.9% had nails but nail dirt was present in only 10.9% of the study participants.

**Table 3: Distribution of Practice on Personal Hygiene in Study Population**

Sl. No.	Variables	Yes (%)	No (%)
1	Using head caps	33 (30%)	77 (70%)
2	Use of aprons	28 (25.5%)	82 (74.5%)
3	Use of gloves/ masks	42 (38.2%)	68 (61.8%)
4	Use of slippers	76 (69.1%)	34 (30.9%)
5	Trimming of nails done	95 (86.4%)	15 (13.6%)
6	Smoking/ tobacco habits	12 (10.9%)	98 (89.1%)
7	Frequent hand washing	104 (94.5%)	6 (5.5%)
8	Wiping of sweat in hygienic manner	101 (91.8%)	9 (8.2%)

Only 30%, 25.5%, 38.2% had practiced using head caps, aprons and gloves/masks respectively. Most vendors (69.1%) wore slippers. 86.4% had properly trimmed their nails and 89.1% smoked and chewed tobacco. 94.5% practiced frequent hand washing and 91.8% practiced the habit of wiping the sweat in hygienic manner. Among the study population, 64.5% (71) had bad practice of personal hygiene. Further we analysed the Socio demographic factors like age, sex, education, type of shop, monthly income and years of experience with knowledge attitude and practice of study population regarding personal and food hygiene. There is no significant association between socio-demographic factors and knowledge level of cooking process hygiene, kitchen area hygiene, personal protection, diseases among the study population. There

is no significant association between socio-demographic factors and attitude towards personal hygiene and food hygiene among the study population. Coming to practice of personal hygiene and food hygiene there is no significant association between socio-demographic factors and kitchen area hygiene, serving area hygiene practices among the study population. There is significant association between type of shop and food safety practices among the surveyed shops. Food safety practices are significantly associated with income of the study population. There is no significant association between other socio-demographic factors and food safety practices among the study population. There is no significant association between socio-demographic factors and personal hygiene practices among the study population.

## DISCUSSION

This was a cross sectional study conducted to assess knowledge, attitude and practice regarding food hygiene among street food vendors in urban Chidambaram. The presence of Lord Natarajar temple and Annamalai University makes it a tourist spot as well as knowledge and employment power house. Chidambaram town is rapidly expanding in size and population. In the present study 50 (45.5%) of the study participants belonged to the age group between 20 and 29 years. In the study by Akabanda et al, majority of the food-handlers (39.1%) were between 41–50 years<sup>7</sup>. Similar studies showed that workers in older age brackets had better hygiene scores than their younger colleagues. In a study by Iwu et al, more than half of the respondents (59.5% ) were between the ages of 21 and 40 years old<sup>8</sup>. In this study, majority 75 (68.2%) of the study participants were males. Similarly in the study by Iwu et al, food vendors were predominantly male, same as in many studies such as Muinde et al and Duse et al.<sup>9</sup>. In this study, 74 (67.3%) of the study participants had studied up to higher secondary school, while 18.2% of the study participants had no formal education. Similarly, Iwu et al <sup>8</sup>states that the participants had either a secondary or tertiary level of education which is similar to many studies done by Afolaranmi et al in 2015, Okojie et al in 2014<sup>10,11</sup>. However, a previous study demonstrated that irrespective of educational level, employees performance in food safety knowledge was not satisfactory and thus a cause for public concern. All the study participants (100%) in this study washed hands after using handling waste or garbage and after using toilet. This is similar to study done by Akabanda et al, in which almost all of the food-handlers were aware of the critical role of general sanitary practices in the work place, such as hand washing (98.7%) and using gloves (77.9% )<sup>7</sup>. Similarly Soares et al in their study states that majority of the vendors indicated that they always washed their hands after visiting toilet. But in contrast, in the study done by Murat bas et al, only 21.2% of the study participants of food handlers identified the need to wash their hands after going to the toilet, handling raw foods and before handling ready-to-eat food<sup>12</sup>. In this study, majority (96.4%) of the study participants didn't smoke near the business area. Most (96.4%) of the study participants washed hands after coughing, sneezing, smoking and only 26.4% of the study participants wore head cap or gloves while handling food stuffs. Nearly 51.8% and 80% of the study participants in the present study reported that they do not handle food stuffs during fever or while having infected cuts. But in the study by Lues et al, all of the respondents indicated that they had at some stage prepared food while ill. This response should have been expected, since absence as a result of illness would mean loss of income for that period.<sup>13</sup> Lues et al, in

their study states various reports indicate that practices such as preparing food with uncovered skin abrasions, failure to wash hands after using the toilet or after handling contaminated material, spitting or sneezing and other forms of contamination, may contribute to the occurrence of food-borne disease outbreaks and it is of the utmost importance for food handlers to know how food-borne illnesses occur and how they can be prevented.<sup>13</sup> Only 30.9% , 31.8% and 20.9% of the study participants in this study practiced wearing hair cover, gloves and apron respectively which is similar to study done by Ok ojie et al, in which , 208 (72.7% )of the study participants wore head cover.<sup>11</sup> 93.6 % of the study participants in this study practiced hand washing. Similarly in the study by Abdalla et al, the vendors(74.0%) agreed that the hand must be washed.<sup>1</sup> In the present study, 72.7 % of the study participants wore slippers and 7.3% of the study participants smoked and 26.4% wore jewellery during cooking. 15.5% of the study participants in this study had either coughed or sneezed or had running nose on the day of survey. 80.9% of the study participants in the study had nails but nail dirt was present in only 10.9%. In the study by Okojie et al,<sup>11</sup> (6.6%) of the study participants were keeping long nails. and in the study by Iwu et al, about half of the respondents had well-kept nails (52.0%).<sup>8</sup> Coming to practice only 30%, 25.5% and 38.2% of the study participants in this study had practiced using head caps, aprons and gloves/masks respectively. But in study by Iwu et al, more than half of the respondents (59%) wore apron and cap.<sup>8</sup>. According to the World Health Organization (WHO), the use of aprons and hair covers by food vendors had more to do with aesthetics and consumer assurances than food safety. The study done by Lues et al, states that 71% of the study participants covered their hair during food preparation. Because hair is known to harbour *S. aureus*, it is essential to prevent loose hair and dandruff from falling onto the food or food preparation areas.<sup>13</sup> In this study, most vendors (69.1%) wore slippers. 86.4% of the study participants had properly trimmed their nails and 89.1% of the study participants smoked or chewed tobacco. 94.5% of the study participants practiced frequent hand washing and 91.8% of the study participants practiced the habit of wiping the sweat in hygienic manner. Among the study Population in the present study, 64.5% had bad practice on personal hygiene. This is similar to the study by Iwu et al, where only 36.5% of the study participants of the respondents had a good level of food hygienic practice and 32% had a poor level of food hygienic practice.<sup>8</sup> In the study by Mohd zain et al, practice towards food-borne disease and food safety was poor in view of hand washing (50.9% ) and personal hygiene (63.7%).<sup>6</sup> Association between Knowledge, Attitude, Practice and Socio-demographic factors In the study by

Okojie et al, Respondents with tertiary education, 5 (38.5%), vended foods in environment with good hygiene status compared to those with secondary, 45 (31.7% of the study participants), and primary education, 33 (27.3% of the study participants). There was no statistically significant association between educational status and the hygiene status of food premise ( $p = 0.362$ ).<sup>11</sup> Even in our study, there is no statistically significant association between vendors with good education (graduates) and hygienic practices in serving area ( $p = 0.078$ ). In the study by Okojie et al, 27 (96.4%) of the study participants who vended food from containers with covers were males, compared to 243 (94.2% of the study participants) of their female counterparts who did. There was no significant association between gender and the practice of covering food containers ( $p = 0.624$ ).<sup>11</sup> This is similar to this study, in which there is no significant association between gender and food hygienic practices in serving area ( $p = 0.606$ ). A study in Ghana by Rheinländer et al, reported that knowledge was not closely related to practice.<sup>14</sup> which is similar to this study, where knowledge on cooking process, knowledge on kitchen, knowledge on personal protection and knowledge on diseases were not related to practice on food safety ( $-0.035, -0.113, -0.281, -0.210$ ).

## CONCLUSION

In the interest of public health, the management of food vendors both mobile and stationary should involve the development of coordinated, effective, integrated and preventive strategies that emphasize vendor registration, formal training on hygienic practices, initial medical and periodic medical certification and regular personal and environmental hygiene checks. Making safe food a top priority to prevent food borne diseases, protect the health of your family and community, and being confident about the safety of the food you eat is utmost important. Food vendors should be adequately educated on the role of food in disease transmission as well as on rules of personal hygiene and approved practices in handling street food.

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