



## IMPACT OF TRAINING OF STREET FOOD VENDORS ON FOOD SAFETY AND HYGIENE PRACTICES IN THE CITY OF GUWAHATI

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### Abstract

Street food is an integral part of the cuisine of any society across the world. These foods are largely appreciated for their flavours, convenience, low cost and their cultural and social heritage. It is also a large source of employment generation among the unemployed and the migrant population. It has however been recognized that the condition under which street food vendors operate are often unacceptable for the purpose of preparing and selling of food and they showed little concern towards safe handling of foods. In this study, the major objective was to determine the food safety aspects and practices of street food vendors in Guwahati city.

Street food vendors were selected randomly from two strategic locations of Guwahati city to assess and compare their knowledge regarding different food safety aspects and hygiene practices before and after training interventions. The pre-training knowledge of the vendors indicates that they had very minimal knowledge regarding food safety aspects, with respect to their work units, utensils and personal hygiene. Based on the findings of the survey, fifteen days training intervention programme was carried out on various areas viz, food hygiene, nutrition and health, personal hygiene, work unit and environmental hygiene. The study revealed an average of 24.35%-66.2% increase in knowledge level regarding various food safety aspects and 37.5%-50.8% in adoption of good hygiene practices.

### Introduction

Street foods are defined as ready to eat (RTE) food and beverages prepared or sold by vendors and handlers in streets and similar public places.(FAO,2013) for immediate consumption or consumption at a later stage without further processing or preparation. Street food is gaining much popularity in India and it is the cheapest source of meeting energy requirements of the consumers represented by students, tourists, daily commuters, industrial and office workers.

These foods are provided at a reasonable price at convenient locations in a short duration of time and meet the nutritional needs of a significant portion of the population. But, despite its growing popularity, there is threat and health risk to the consumers due to cross contamination of the food, ignorance on food safety issues and misuse of prevailing situation as there is no regulation to take action against a vendor on account of non-compliance of proper guidelines on food safety. Street food vendors are very often poor, uneducated and show little concern towards the safe handling of foods (Lues, *et.al*,2006).

Food safety of street food is a major concern as these foods are generally prepared and sold under unhygienic conditions, with limited access to safe water, sanitary services or garbage disposal facilities (WHO, 2006). Several studies reported that the food safety knowledge and practices are very poor among the street food vendors (Choudhury *et. al.* 2011).

Hence, good hygiene practice and awareness of the street food provider regarding different food safety aspects is the only way to safeguard the health issues of the increasing number of consumers. Creating greater awareness of hygiene and food safety in street food sector through 'training' programme was the main objective of this project. A major intervention in improving the safety of street food entails training of food vendors on hygienic handling of food (FAO/WHO, 2002; Seamen & Eves, 2010).

### Materials and Method

#### Sampling

The study consisted of 2 phases:

In the first phase the study comprised of identifying and selecting street food vendors from 2 strategic locations viz. Panbazar and Fancy Bazar area of Guwahati city. The vendors were mainly from market places, vicinity of railway stations, parks, schools, colleges, offices etc. the purpose of this phase was to prepare a comprehensive data-base on the knowledge, attitude and practices related to food safety among food service providers and food handlers in Guwahati city. In all forty three (43) mobile food vendors were randomly selected for this study.

#### Training Programme

The second phase was the training intervention programme in which all the selected vendors were imparted training in the Department of Home Science, Handique Girls' College for a period of fifteen days. Out of 43 vendors interviewed only 29



turned up for the training session. The training was given covering all the five major problem areas i.e. personal hygiene, food hygiene, nutrition and health and unit and environmental hygiene that were identified in the first phase.

The training programme comprised of 15 interventions or sessions for which various training methodologies and materials were employed, considering their socio-economic background to make the vendors understand the topic clearly as well as implement them in their unit. The various training materials developed were charts, flip charts, posters motivational video films, role-play, demonstrations, puppet shows and handouts.

### Questionnaires

A questionnaire was developed to know the existing knowledge on food safety aspects of the mobile food vendors. It was then pre-tested on a few randomly selected vendors of Guwahati city for clarity and validity by using appropriate method (Singh, 1988) and was found to be reliable. These vendors were not selected for the final study. All the respondents were asked open ended questions. If their response were completely correct, it was considered as right (R) answers. Incorrect answers were coined as wrong (W) and the rest as No-response (NR). There were 25 questions in all and the same questionnaire was used before and after the training programme to compare the Pre and Post-training knowledge regarding different food safety issues.

### Statistical Analysis

The mean, frequency, percentage and the percentage change in knowledge and practice were calculated and t-test was done for analyzing impact of the training programme.

### Results and Discussions

The pre-training and post-information data was collected from the vendors to know the impact of training in terms of knowledge and practices. The data presented in Table 1 gives an idea of the response of the 25 questions both before and after training intervention and the percent change in knowledge of the vendors after the training sessions were imparted.

**Table 1: Food Vendors Giving Right Response (R) in Pre and Post-Training Interventions**

S. No	Questions	Pre-Training Knowledge Food Vendors (%)	Post-Training Knowledge Food Vendors (%)	Percent Change
1	Q1	79 (45.93)	88 (84.62)	46
2	Q2	112 (65.12)	88 (84.62)	23
3	Q3	98 (56.98)	84 (80.77)	29
4	Q4	49 (28.49)	55 (52.88)	46
5	Q5	71 (41.28)	75 (72.12)	43
6	Q6	13 (7.56)	64 (61.54)	88
7	Q7	10 (5.81)	63 (60.58)	90
8	Q8	51 (29.65)	74 (71.15)	58
9	Q9	39 (22.67)	66 (63.46)	64
10	Q10	4 (2.33)	57 (54.81)	96
11	Q11	9 (5.23)	33 (31.73)	84
12	Q12	13 (7.56)	74 (71.15)	89
13	Q13	37 (21.51)	66 (63.46)	66
14	Q14	90 (52.33)	91 (87.5)	40
15	Q15	11 (6.40)	36 (34.62)	82
16	Q16	5 (2.91)	46 (44.23)	93
17	Q17	54 (31.4)	74 (71.15)	56
18	Q18	15 (8.72)	98 (94.23)	91
19	Q19	53 (30.18)	85 (81.73)	63
20	Q20	12 (6.98)	74 (71.15)	90
21	Q21	82 (47.67)	79 (75.96)	37
22	Q22	64 (37.21)	74 (71.15)	48
23	Q23	36 (20.93)	65 (62.5)	67
24	Q24	41 (23.84)	61 (58.65)	59
25	Q25	44 (25.58)	71 (68.21)	62



It is evident from the table that there was marked difference in the level of knowledge in most of the factors after the training intervention. This was due to the fact that almost all the vendors had a very positive attitude towards the training programme. There was a significant change in the knowledge level of the vendors after the training session.

### Comparison between Pre and Post-Training Knowledge of Food Vendors Regarding Various Aspects

The data presented in table 2 shows that knowledge level of street food vendors on biological sources of food contamination at pre-training period was only 7.56% which increased to 61.54% in post training period. Similarly, as far as management of left over food is concerned the average right response was 5.81% which increased to 60.58%, on safe drinking water was 29.65% which increased to 71.15% after implementation of the training programme. The percentage increase in knowledge on symptoms of food borne illnesses was 38.69%.

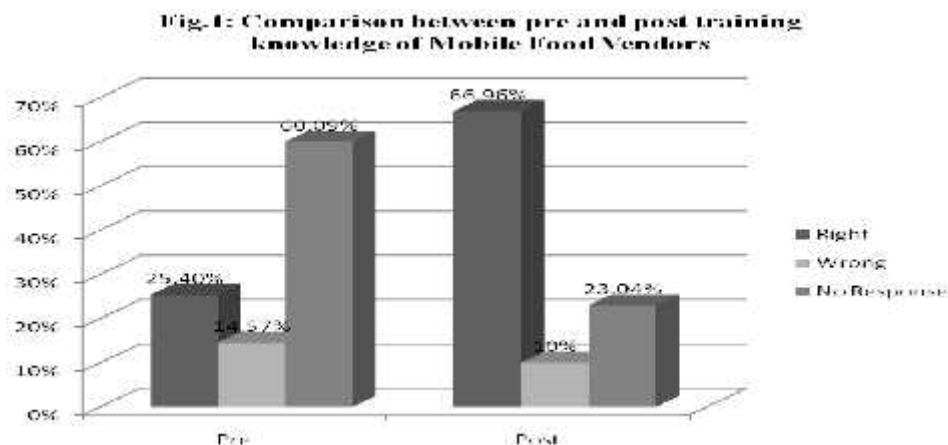
**Table 2: Percentage of Food Vendors Showing Change in Knowledge in Pre and Post-Interventions**

Knowledge level	Street Food Vendors	
	Pre	Post
Biological source of contamination	7.56%	61.54%
Management of leftover food	5.81%	60.58%
Serving safe drinking water	29.65%	71.15%
Food borne illness	45.93%	84.62%

It is evident from the study that knowledge with respect to food sources of different nutrients viz. protein, vitamins, minerals & energy foods and regarding conservation of nutrients increased in post training period. The change in knowledge in average was more than 50% as far as food sources of nutrients are concerned.

The data also reveals that knowledge regarding food adulterant and value addition right response increased by 30% to 40%, which means positive impact of the training on this aspect. Similarly, the knowledge on unhygienic practices, practice of hand washing and use of sanitizers improved significantly after the training programme.

Fig. 1 clearly depicts that percentage of vendors responding to right options increased from 25.40% to 66.96% after the training programme. The percentage of vendors responding to wrong answers came down from 14.57% to 10% and that no response group decreased significantly from 60.09% to 23.04%.



### Impact of Training Interventions on Adoption of Good Hygiene Practices by Street Food Vendors

The vendors were monitored before and after the training programme to see the impact of training on adoption of good hygiene practices which was done by visiting their places personally and observing their work and also asking some open-ended questions related to hygiene practices. The performance of good hygiene practices were then rated as full (F), partial (P) and nil (N).

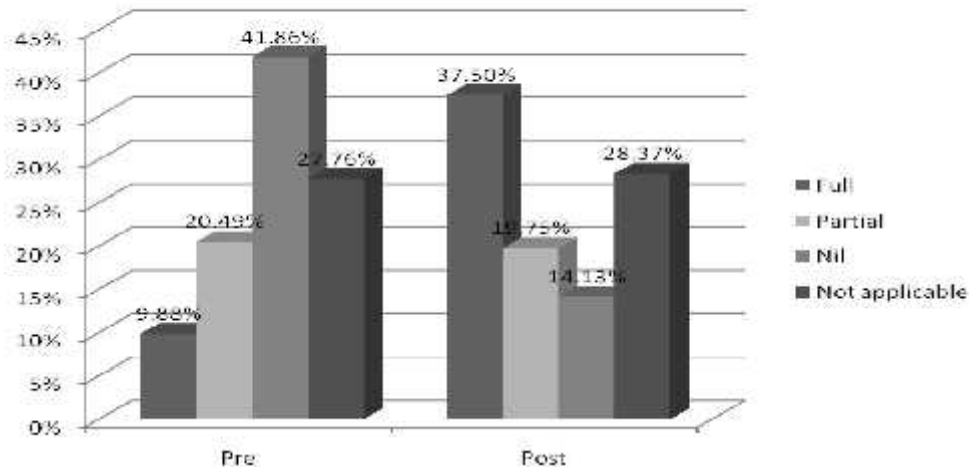
### Pre and Post-Training Performance Rating on Adoption of Good Hygiene Practices

Fig 2 depicts comparison between pre and post-training performance rating on good hygiene practices. The performance rating improved in the post-training period, but it was relatively low and slow. This may be due to feeling of insecurity



arising from frequent eviction as they do not have a permanent vending place or may be due to the cost of maintenance of a well equipped cart and improper facilities of waste disposal, drainage system and potable water supply. However, the vendors realized the importance of waste disposal and most of them tried to have a dustbin with a lid, and others who could not afford to have a proper dustbin used a broken bucket or an open bin. Various good hygiene practices such as use of three tub system, washing utensils placed much above the ground level, covering of the cooked food, a separate unit for hand washing, use of sanitizer, wearing apron and head gears were seen to be adopted by the vendors in the follow-up visits at the vending sites after the training programme.

**Fig.2: Pre and Post-training performance rating on adoption of good hygiene practices**



### Conclusion

The study clearly depicts that knowledge and good practices of street food vendors regarding food safety and hygiene issues can be improved by imparting training programme from time to time. Appreciable knowledge gain was observed in the post training session in terms of food related aspects and adoption of good hygiene practices which shows the positive impact of the training.

### Recommendations

- Training of street food vendors should be mandatory.
- Licenses to be issued to the trained street food vendors.
- Cordial relationship should be developed between the concerned government departments and street food vendors.
- Implementation of surveillance mechanisms for street food safety.
- Creating food courts or permanent vending zones for license holders.
- Need for financial support to street food providers for purchasing improved carts.

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