

A study on hygiene practices, sanitation and food safety knowledge among food vendors in different sectors of Kolkata city, West Bengal, India.

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Abstract:

The nutritional status of people adversely affects their physical and mental growth. The present studies were carried out to assess the hygiene practices and food safety among street food vendors in the city of Kolkata. It includes 100 samples of vendors. Fifty vendors were mobile and other 50 was fixed vendors. A self-planned questionnaire was used for data collection for the vendors. The questionnaire included questions about demographic information, hygiene practices, and food safety. Thirty eight percent of vendors used stalls, but did not uphold their stalls well. Eighty-three per cent of the vendors had thrown garbage in the open vessel and 14.0% used dustbin for dispose garbage. Personal hygiene was also observed which indicated that the vendors never wear the head covers, handled food with bare hand and they did not wear overcoats/aprons as well. Street food vendors were not aware of hygienic and sanitary practice.

Keywords: Physical and mental growth, Kolkata area, Food safety, Sanitation, Street food, Vendors.

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I. INTRODUCTION:

People morbidity is major public health concern as this adversely affects their physical and mental growth. Lifestyle changes and socio economic factors creates very small space for consumers to look at other alternatives one of which would be to pre- pare one's own meal (Kok and Balkaran, 2014). Mishandling and disregard of hygienic measures on the part of the food vendors may enable pathogenic bacteria to come into contact with food and in some cases survive and multiply in enough numbers to cause illness in the consumers (Chirag et al, 2013).The World Health Assembly (WHA) adopted a resolution in which, the World Health Organization (WHO, 1996) was asked "to give greater emphasis on food safety with the goal of developing suitable, integrated food safety systems for the reduction in health risk along the entire food chain, from main producer to the consumers". By WHO, five keys to safer food are: (i) Keep clean (ii) Separate raw and cooked (iii) Cook thoroughly (iv) Keep food at safe

temperatures and (v) Use safe water and raw materials. The word "Sanitation" is derived from the Latin word "Sanitas" which means "health". It is the creation and maintenance of hygienic and healthful conditions while processing, preparing and handling food. Sanitation is a science to provide wholesome food handled in hygienic environment by the food handlers to prevent contamination (Solanki, 2008). Therefore, the present investigations were conducted to assess the water, sanitation and hygiene (wash) practices and food safety knowledge among food vendors.

II. MATERIALS AND METHODS:

Study area: The study was conducted in different sectors of Kolkata (North Kolkata, South Kolkata, East Kolkata & West Kolkata). The data were collected by two methods i.e. Questionnaire method and Observation method. Questionnaire was a set of printed written questions about a choice of answers, devised for the purposes of a survey. Observation

showed 93 % male vendors and 7 % female vendors; and 42.0% vendors sold chaat / snacks. Likewise, 58.0 % (42 fixed and 16 mobile) vendors sold full meal. The samples were selected by Purposive Random Sampling method. Hundred Street vendors were selected randomly from different sectors. Fifty vendors were those who served food at stall or mobile vending and other 50 were those who served food at Dhaba or fixed vending. The information was gathered by either oral interview/written questionnaire. A series of questions had been designed to elicit information, which was filled in by all participants in the Questionnaire.

Data collection: After completing the data collection, the questionnaire of vendors was sorted out and arranged in the series. The data were transferred in MS Excel sheet. The collected data

got analyzed by SPSS and the results were calculated in mean percentage such as distribution of vendors on basis of gender.

III. RESULTS AND DISCUSSION:

Distribution of vendors on gender basis: Table 1 showed that distribution of vendors on gender basis. Hundred samples of vendors were selected, it showed that 93.0% (43 fixed and 50 mobile) were male vendors and 7.0% (7 Females) were female vendors, respectively. Rayza et al., 2016) showed that among 43 street food vendors interviewed, 58% were male, 42% were aged between 40 and 59 years and 49% had completed only elementary school in a study during the chain of street food production in Florianopolis, Brazil.

Table 1. Distribution of vendors on gender basis.

Vendors	Sex		Total	Percentage (%)
	Males	Females		
Fixed	43	7	50	93.0%
Mobile	50	0	50	7.0%

Category of vendors in different sectors: Table 2 category of vendors in different sectors showed the fixed and mobile vendors from different sectors of Kolkata. Nineteen percent (9 fixed and 10 mobile) vendors were from sectors 17, 44.0% vendors (20

fixed and 24 mobile) from sector 41, 22.0% vendors (14 fixed and 8 mobile) taken from sector 19, 12.0% vendors (7 fixed and 5 mobile) from sector 22 and 3.0% (3 mobile) mobile vendors were taken from sector -16, respectively.

Table 2. Category of vendors in different sectors.

Different Sectors	Fixed	Mobile	Total	Percentage (%)
Sector-17	9	10	19	19.0%
Sector-41	20	24	44	44.0%
Sector -19	14	8	22	22.0%
Sector-22	7	5	12	12.0%
Sector-16	0	3	3	3.0%
TOTAL	50	50	100	100.0%

Distribution of vendors on the basis of their meals: Table 3 revealed that 42.0% (8 fixed and 34 mobile) vendors sold chaat /snacks. Likewise, 58% (42 fixed and 16 mobile) vendors sold full meal, respectively.

Table 3. Distribution of vendors on the basis of their meals.

Vendors	Meal		Total	Percentage(%)
	Chaat/Snacks	Full Meal Meal		
Fixed	8	42	50	42.0%
Mobile	34	16	50	58.0%
Total	42	58	100	100.0%

Distribution of vendors on the basis of overall appearance of stall: Table 4 revealed that overall appearance of stall 38.0 % (17 fixed and 21 mobile) vendors used stall but do not well maintain. Likewise 18.0% (9 fixed and 9 mobile) vendors stall appears like brand new, 18.0% (12 fixed and 6 mobile) vendors used their stall but well maintained and 26% (12 fixed and 14 mobile) vendors stall in poor condition

Table 4. Distributions of vendors on the basis of overall appearance of stall.

Appearance	Fixed	Mobile	Total	Percentage (%)
Brand new	9	9	18	18.0%
Used well maintained	12	6	18	18.0%
Used not well maintained	17	21	38	38.0%
Poor condition	12	14	26	26.0%
Total	50	50	100	100.0 %

Working hours of vendors: Table 5 showed that 29.0% (12 fixed and 17 mobile) vendors were working for 8-10 hours. Likewise, 23.0% (10 fixed and 13 mobile) vendors were working for 2-4 hours and 48% (28 fixed and 20 mobile) vendors were working for 5- 7 hours. (Joglekar and Bho, 2013) observed that working hours of the vendors that they spent were more than 5 hours in vending.

Table 5. Working hours of vendors.

Hours of Working	Fixed	Mobile	Total	Percentage (%)
2-4 hours	10	13	23	23.0%
5-7 hours	28	20	48	48.0%
8-10 hours	12	17	29	29.0%
Total	50	50	100	100.0 %

Type of employment: Table 6 revealed that only 6.0% (4 fixed and 2 mobile) vendors were work as a worker in stall, 89.0% (41 fixed and 48 mobile) vendors were in-charge of their stall and only 5.0% (5 fixed) vendors work as an employee. Jo- se S. Hilario (2015) noticed that 90% of street food vendors had concentrated peak hour of their business towards lunchtime and snacks during an evaluation of the hygiene and sanitation practices among street food vendors along Far Eastern University (FEU), Manila at Phillipines.

Table 6. Type of employment.

Own stall or Employee	Fixed	Mobile	Total	Percentage(%)
Worker In charge	4	2	6	6.0%
employee	41	48	89	89.0%
Employee	5	-	5	5.0%
Total	50	50	100	100.0%

Table 7 reveals that distribution on the basis of hygiene 88% don't ever participated in any training programme, 5.1% increase hygiene quality, 4.1% wearing apron and hand gloves and only 1% maintain hygiene.

Table 7. Distributions on the basis of hygienic.

Hygiene	Fixed	Mobile	Total	Percent-age (%)
Increase Hygiene Quality	2	3	5	5.1%
Wearing Apron And Hand Gloves	4	2	6	4.1%
Maintain Hygiene	1	0	1	1.0%
Don't Change	43	45	88	88.0%
Total	50	50	100	100.0%

Distribution of vendors on the basis of preparation process

Employees helping in food preparation: Table 8 revealed twenty percent (17 fixed and 3 mobile) vendors employed workers for help in preparation processes, 80% (33 fixed and 47 mobile) vendors were those who employed no worker for help in preparation. Street food operations involved the work of entire families in the procurement of raw materials, preparation, and cooking of meals and their sale.

Table 8. No. of employees helped in food preparation.

Vendors	Preparation		Total	Percentage (%)
	Yes	No		
Fixed	17	33	50	20.0%
Mobile	3	47	50	80.0%
Total	20	80	100	100.0%

Table 9 showed that 18% (16 fixed and 2 mobile) vendors take help from their family member and 2.0% (2 fixed) were those who appoint other than family member. Rayza et al., (2016) showed that 58% of vendors had 3 family members and more than 30% had three to five family members in a study during the chain of street food production in Florianopolis, Brazil.

Table 9. If yes, employees helped in food preparation.

Vendors	If yes			Percentage (%)
	Family member	Others	Total	
Fixed	16	2	18	18.0%
Mobile	2	0	2	2.0%
Total	18	2	20	20.0%

Meals prepared by vendors: Table 10 showed that vendors most commonly prepared two meals in a day. Seventy three percent (28 fixed and 45 mobile) vendors prepared one meal per day. Like- wise, 27.0% (22 fixed and 5 mobile) vendors prepared two meals a day.

Table 10. Meals prepared by vendors.

Meals	Fixed	Mobile	Total	Percentage (%)
One meal	28	45	73	73.0%
Two meals	22	5	27	27.0%
Three meals	0	0	-	0.0%
Total	50	50	100	100.0%

Table 11 suggest that out of the total sample 100, majority of them (75%) wash their food preparation surface every day, whereas 20.0% were wash once a week, only 5.0% wash their food preparation surface every day.

Table 11. Distribution on the basis of wash food preparation surface.

Wash food preparation	Fixed	Mobile	Total	Percentage
Everyday	45	30	75	75.00%
After every meal	3	2	5	5.00%
Once a week	0	20	20	20.00%
Total	50	50	100	100.0%

According to table 12 distribution on the basis of clean surrounding. Out of 100.0% of the vendors 64% clean their surroundings and 36.0% of them are not clean their surroundings. Food Sanitation Unit (2006) found 13% of vendors have unclean food stall's surface.

Table 12. Distribution on the basis of clean surrounding.

Vendor	Clean surrounding		Total	Percentage (%)
	Yes	No		
Fixed	35	15	50	64.0%
Mobile	29	21	50	36.0%
Total	64	36	100	100.0%

Table 13 reveals that 90.0% of vendors wash their food properly before cooking and 10.0% out of total did not wash food properly.

Table 13. Distribution on the basis of wash food before cooking.

Vendor	Wash food		Total	Percentage (%)
	Yes	No		
Fixed	48	2	50	90.0%
Mobile	42	8	50	10.0%
Total	90	10	100	100.0%

Table 14 Findings show that vendors prepared the foods either at home or at the stalls, which were located by the roadsides. Mostly fixed vendors are prepare food in the stall(58.0%) vendors prepared food from home to site and 38.0% are prepared food at the site mostly the mobile vendors and only 4.0% vendors purchase food from other institution

Table 14. Distribution on the basis of site where food prepared.

Food prepared	Fixed	Mobile	Total	Percentage (%)
At home	36	22	58	58.0%
At site	14	25	38	38.0%
Obtain from other institution	0	4	4	4.0%
Total	50	50	100	100.0%

The present study observed that hygienic practices and food safety were minimal in food street vendors in different sectors of Kolkata, India. In view of the knowledge of roadside vendors on hygienic practices in food preparation, handling of utensils, place for food preparation and personal hygiene and methods of storing cooked food, it was indicated that vendors had a minimal knowledge of hygienic and sanitary practices. All the vendors, helpers/r food handlers should undergo a basic training in food hygiene. They must be aware. They also need health education to improve the knowledge of food vendors on hygiene practices and food safety.

IV. CONCLUSION:

In a study on water, sanitation and hygiene (wash) practices and food safety knowledge among food vendors in different sectors of Kolkata area in India, it was concluded that 93.0% (43 fixed and 50 mobile) were male vendors and 7.0% (7 Fe- males) were female vendors. Nineteen percent vendors were from sectors 17, 44.0% vendors from sector 41, 22.0% vendors taken from sector 19, 12.0% vendors from sector 22 and 3.0% mo- bile vendors were taken from sector16. 42.0% (8 fixed and 34 mobile) vendors sold chaat /snacks. Likewise, 58.0

% (42 fixed and 16 mobile) vendors sold full meal. Overall appearance of stall 38.0 % (17 fixed and 21 mobile) vendors used stall, but do not well maintain. Likewise, 18.0% (9 fixed and 9 mobile) vendors stall appears like brand new, 18.0% (12 fixed and 6 mobile) vendors used their stall, but well maintained and 26% (12 fixed and 14 mobile) vendors stall in poor condition. 6.0% vendors worked as workers in stall, 89.0% vendors were in charge of their stall and only 5.0% (5 fixed) vendors worked as an employee. Twenty percent (17 fixed and 3 mobile) vendors employed as workers helped in preparation process, 80% (33 fixed and 47 mobile) vendors were those who employed no worker helped in preparation process. This research recommends that every fixed and mobile vendor food handler should undergo a basic safe street food training programmes to have knowledge of hygiene practices.

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