

Original Research Article

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Knowledge, attitude and practice of food hygiene among street food vendors near a tertiary care hospital in Kolkata, India

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ABSTRACT

Background: Health care set ups in Indian cities are being catered by a number of street food vendors on whom the patients, visitors, doctors, medical students and staff depend. Thus, ensuring proper food hygiene among them is of uttermost importance. The purpose of the study was to determine knowledge, attitude and practice of food hygiene among them and various factors that influence it.

Methods: A cross sectional study was conducted on 106 street food vendors surrounding a tertiary care hospital in Kolkata. A predesigned pretested schedule was used to collect information on socio-demographic profile, knowledge and attitude on food hygiene through interviews and practice was observed. Statistical analysis was done using Pearson's Chi-squared test.

Results: The mean age of food vendors was 37.74 ± 10.70 years and majority were familiar with the terms "food hygiene" and "food borne illness". The median score of attitude on food hygiene was 9.5 and significant ($p < 0.05$) association was found with age, gender and education. Less than one third of street food vendors had acceptable practice and significant ($p < 0.05$) association was found with education, marital status and type of food vendor.

Conclusions: The street food vendors were aware of food hygiene and had favourable attitude towards it, but it wasn't translated in their hygiene practice. This study can help to identify the factors that influence food hygiene practice and incorporate them in food hygiene training.

Keywords: Attitude, Food hygiene, Knowledge, Medical college, Practice, Street food vendors

INTRODUCTION

Street foods are one of the most saleable things which are relatively cheap and readily available to a large number of people. They are described as "wide range of ready to eat food, beverages, which are sold on street and public places".¹

They are appreciated for their flavour, easy availability and reasonable price. One very important aspect related to the street food is its necessity for maintaining the nutritional status of a large section of population. Street

foods are also a potential source of food borne illness, thus they pose a major health problem.² WHO has highlighted the challenges associated with food safety under the slogan "From farm to plate, make food safe" and has also emphasized on various ways to make food safer.³

It is often recognised that lack of food hygiene among street food vendors lead to food borne illness. Vendors being poor and uneducated, they lack proper understanding of food hygiene. Their poor knowledge and poor food safety practices make street foods

perceived as a major public health risk.⁴ A study conducted by Kalua observed that knowledge positively influences attitude formation that is translated into practice.⁵

Kolkata is a metropolitan city where a large number of people from government and private institutions, offices and even hospitals depend on street foods. In hospital, these food vendors are catering a large number of patients, visitors, medical students, doctors and hospital staffs. To avoid any major outbreak among them, a high standard of hygiene and practice must be ensured. Hence, their knowledge, attitude and food hygiene practices are essential to understand.

In India, very few studies have been conducted on street food vendors regarding food hygiene and hence there is dearth of knowledge regarding it. This study was undertaken to determine the knowledge, attitude and practice of food hygiene among street food vendors and their association with various socio demographic factors.

METHODS

Study type and design

Observational, Cross sectional descriptive study.

Study period

15th Nov 2017 to 15th Jan 2018

Study setting

The study was conducted in the streets immediately adjoining IPGME&R and SSKM Hospital, Kolkata as shown in Figure 1.

Study population

Street food vendors in the area adjoining IPGME&R and SSKM Hospital, Kolkata.

Inclusion criteria

Inclusion criteria were those who were directly dealing with food preparations; agreed to participate in the study.

No exclusion criteria were applied.

Sample size and sampling design

Purposive sampling was done.

The area adjoining IPGME&R and SSKM Hospital was surveyed for enumeration of all street food vendors. Among 125 vendors, 106 consented to participate in the study, so final sample size was 106. The response rate was 84.8%.

Study tool

Predesigned, pretested schedule was used.

Study technique

Data collection was done by face-to-face interviewing & by using observational checklists.

Study procedure

Data collection was started after obtaining permission from Institutional Ethics Committee (IEC) and after written consent from the study subjects. Information pertaining to socio demographic profile, knowledge and attitude were obtained by predesigned, pre tested schedule and practice of food hygiene was observed.

Scoring

Attitude towards food hygiene was assessed using 6- item questionnaire, where the responses were given the following weight age: Agree- 2 score, don't know- 1 score, Disagree- 0 score. As per the responses, total score was computed. Attitude score more than median score (excluding the median) was defined as favourable attitude, with score less than median score (including the median) was unfavourable attitude. For scoring of practice, positive response (Yes) was given 1 score, negative response (No) was given 0 score. As per the responses, total score was computed. Acceptable practice was defined as practice score more than median score (excluding the median itself) and Unacceptable practice was defined as practice score less than median score (including the median itself).

Data analysis

The data were compiled in MS Excel and statistical analysis was done by descriptive and inferential statistics using SPSS Version 20.



Figure 1: Depicting the location of the study area adjoining the hospital.

RESULTS

Socio demographic profile

Mean age of the food vendors was 37.74 ± 10.709 years, with mean age for male vendor was 37.59 ± 11.067 years and for female vendor was 38.35 ± 9.235 years.

Most of them (53.77%) belonged to the group of 20 to 40 years of age, with 3.77% was of less than 19 years of age and only 2.83% of the food vendors were more than 60 years of age.

Majority (81.13%) of them were male, with 78.30% belonged to Hindu religion. Nearly one-third (33.96%) had completed middle school, followed by primary school (26.42%) and 14.15% never visited any school. Most of them (80.19%) were married.

Around 61.32% of street food vendors were serving fast food. Others were selling fruit juice (16.04%), meals (15.09%) and tea (7.55%).

Mean years of experience of street food vendors was 13.37 ± 8.06 years, with 77.36% had more than 5 years of experience as depicted by Table 1.

Table 1: Distribution of street food vendors by different socio demographic characteristics (n=106).

Socio demographic characteristics	No (%)
Age	
≤19	4 (3.77)
20 - 40	57 (53.77)
41 - 60	42 (39.63)
>60	3 (2.83)
Gender	
Male	86 (81.13)
Female	20 (18.87)
Religion	
Hindu	83 (78.30)
Muslim	23 (21.70)
Education	
Illiterate	15 (14.15)
Primary	28 (26.42)
Middle	36 (33.96)
Secondary	19 (17.92)
Higher secondary and above	8 (7.55)
Marital status	
Married	85 (80.19)
Single	21 (19.81)
Years of working experience	
≤5 years	24 (22.64)
>5 years	82 (77.36)
Type of food vendor	
Fast food	65 (61.32)
Meals	16 (15.09)
Tea	8 (7.55)
Fruit juice	17 (16.04)

Respondents' knowledge of food hygiene

Among 106 street food vendors, majority 94 (88.7%) were familiar with the term food hygiene, with 88 (83%) knew lack of food hygiene can cause food borne illness.

Majority (72.72%) of them knew "loose motion", followed by vomiting (67.04%) as symptoms of food borne illness. About 30.68% of food vendors thought typhoid as food borne illness followed by cholera (20.45%). However, misconceptions still remain, for instance, 14.77% and 9.09% thought dengue and malaria to be a food borne illnesses respectively as shown in Table 2.

Table 2: Distribution of street food vendors by their knowledge about food borne illness (n=88)*.

	No (%)
Symptoms of food borne illness (n=88)	
1. Loose motion	64 (72.72)
2. Vomiting	59 (67.04)
3. Pain abdomen	33 (37.5)
Type of food- borne illness (n=88)	
1. Typhoid	27 (30.68)
2. Cholera	18 (20.45)
3. Malaria	8 (9.09)
4. Dengue	13 (14.77)

Respondents' attitude towards food hygiene

Majority (84.90%) of street food vendors agreed that proper hand washing reduces food contamination. About 71.69% agreed that raw food should be washed properly and 62.26% supported that well cooked food is less contaminated. A higher proportion of vendors (73.58%) thought food safety was a part of their work, though less than half of them agreed that they may be a source of food borne illness. The median score of attitude was 9.5, with 89.62% having favourable attitude. There was a significant association between attitude and socio demographic characteristics like age, gender and education ($p<0.05$) (Table 3 and 5).

Respondents' practice towards food hygiene

Majority (73.58%) of street food vendors washed hands after using toilet, while only 14.5% washed their hands while dealing with food and money. Nearly half of them separated utensils for raw materials and kept area free of stray animals. Very few (11.32%) covered their head during handling of food. Certain aspects of food hygiene practice like covering of food, cleaning of food storage and checking of expiry of products before use were found in less than one third of vendors. There was a significant association between practice and socio demographic characteristics like education, marital status and type of food vendor ($p<0.05$) (Table 4 and 5).

Table 3: Distribution of street food vendors according to their attitude on food hygiene (n=106).

Statement	Agree No (%)	Disagree No (%)	Don't know No (%)
Well cooked food is less contaminated	66 (62.26)	23 (21.71)	17 (16.03)
Proper hand washing before eating, while cooking, handling of food & money and after using toilet reduces food contamination	90 (84.90)	6 (5.67)	10 (9.43)
Raw food should be washed properly	76 (71.69)	23 (21.70)	7 (6.61)
Raw and cooked food should be stored separately	44 (41.50)	33 (31.13)	29 (27.37)
Food handler may be a source of food borne illness	51 (48.11)	26 (24.53)	29 (27.36)
Safe food handling is an important part of my work	78 (73.58)	16 (15.09)	12 (11.33)

Table 4: Distribution of street food vendors according to their practice on food hygiene (n=106).

Practice observed	Category
Environment aspect of food hygiene	Yes (%)
1. Place free of fly nuisance or rodents	38 (35.84)
2. Place free of stray animals	61 (57.54)
3. Surrounding of stall kept clean	43 (40.56)
4. Garbage disposed in bin	52 (49.05)
Personal aspect of food hygiene	
1. Hand washing before eating, while cooking, handling of food and money	15 (14.50)
2. Hand washing after using toilet	78 (73.58)
3. Finger nails are short, clean, without polish	46 (43.39)
4. Hair covered during food handling	12 (11.32)
5. Avoiding behaviour such as smoking, spitting, chewing, eating, coughing, sneezing over unprotected food	45 (42.45)
Food safety aspect of food hygiene	
1. Separation of utensils for handling raw materials	55 (51.88)
2. Cleaning of food storage before use	37 (34.90)
3. Covering of food	28 (26.41)
4. Checking of expiry of products	30 (28.30)

Table 5: Association of various socio demographic characteristics of street food vendors with attitude and practice (n=106).

Socio demographic characteristics	n	Favourable attitude No. (%)	χ^2 , p	Acceptable practice No. (%)	χ^2 , p
All	106				
Age					
≤ 19	4	3 (75)	9.053, 0.029*	1 (25)	0.080, 0.994
20 – 39	57	44 (100)		17 (29.82)	
40 - 59	42	32 (72.72)		13 (30.95)	
≥ 60	3	0 (0)		1 (33.33)	
Gender					
Male	86	80 (93.02)	5.667, 0.032*	25 (29.07)	0.271, 0.603
Female	20	15 (75)		7 (35)	
Religion					
Hindu	83	74 (89.15)	0.089, 1.000	28 (33.73)	2.283, 0.131
Muslim	23	21 (91.30)		4 (17.39)	
Education					
Illiterate	15	14 (93.33)	6.887, 0.032*	1 (6.67)	7.952, 0.019*
At least primary	83	76 (91.57)		26 (31.32)	
At least higher secondary and above	8	5 (62.5)		5 (62.5)	

Socio demographic characteristics	n	Favourable attitude No. (%)	χ^2 , p	Acceptable practice No. (%)	χ^2 , p
Marital status					
Married	85	42 (49.41)	0.059, 0.801	22 (25.88)	3.775, 0.05*
Single	21	11 (52.38)		10 (47.62)	
Years of working experience					
≤ 5 years	24	21 (87.5)	0.150, 0.709	8 (33.33)	0.146, 0.703
> 5 years	82	74 (92.24)		24 (29.27)	
Type of food vendor					
Fast food	81	73 (90.12)	0.093, 0.761	19 (23.46)	7.385, 0.007*
Only beverages	25	22 (88)		13 (52)	

*p<0.05 is considered as significant.

DISCUSSION

In this study, 106 street food vendors were interviewed; about half of them belonged to 20-40 years of age group and the mean age was 37.74 ± 10.709 years. More than two-third of food vendors had completed schooling up to primary level and had working experience of more than 5 years. This was similar to findings of studies conducted among food handlers in Slovenia, Nigeria and Malaysia while contrasting findings were seen in a Nigerian study whose maximum respondents did not have any formal education.⁷⁻¹⁰ Majority of the food vendors were male and married which is similar to findings in Malaysia and India.¹¹

In our study, majority of street food vendors were familiar with the term “food hygiene” and knew that lack of hygiene may cause food borne illness. Such awareness is very crucial as they serve as vectors in the spread of food borne illnesses due to poor personal hygiene or cross contamination.⁶ A similar response was obtained from one study conducted in Ethiopia.¹² Several studies conducted in different parts of the world (Ethiopia, Malaysia, Iran) had shown that majority of street food vendors had poor knowledge of food hygiene.¹³⁻¹⁵

Reduction in incidences of food borne illness is strongly influenced by the attitudes of food handlers.¹⁷ In this study, majority of food vendors had favourable attitude, with significant association ($p<0.05$) was found with socio demographic characteristics like age, gender and education. Such findings were also seen in a study by Saleon et al.¹⁶

Practice refers to ways in which people demonstrate their knowledge and attitude through their actions. Though in our present study, food vendors had favourable attitude, this wasn't reflected in their practice. Less than one third of them had good practice. Similar finding was reported in a study suggesting that mere knowledge is not enough to have safe practice, several other factors also influence the outcome like employee motivation, education and training.¹⁷ Studies like Bamidele et al, Rahman et al and Cuprasittrut et al had shown poor hygiene practice among food handlers, whereas a contrasting result is seen in

some studies where more than half of the respondents were having good practice.^{14,18-22}

Significant association ($p<0.05$) between practice and socio demographic characteristics like education, marital status and type of food vendor was found, suggesting practice is not only dependent on knowledge and attitude but is also influenced by several other socio demographic factors.

CONCLUSION

Good knowledge with favourable attitude doesn't necessarily mean good practice, which is shown by the results. This study may thus, help to identify various factors that influence the outcome and may be considered while training of street food vendors.

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