

AWARENESS REGARDING STREET FOOD HYGIENE AMONG VENDORS OF BHARTPUR METROPOLITIAN CITY

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ABSTRACT

Background: Street food is ready-to-eat food and beverages found in the street which can transmit multiple harmful bacteria via the food chain and can result in morbidity and mortality due to food-borne diseases. This study aimed to assess the awareness regarding street food hygiene among vendors at Bharatpur Metropolitan City near a Narayani River Bank. **Methods:** A descriptive cross-sectional study was conducted on 83 street food vendors near Narayani River Bank of Bharatpur Metropolitan City. Sample were selected by using Non-Probability Consecutive sampling method. Data was collected by using Structured interview schedule. Obtained data were analyzed in IPM SPSS 20 software version by using descriptive statistics, chi square test and fisher's exact test. **Results:** Findings revealed that respondents were from the age between 18 to 65 years and also noted a nearly equal percentage of vendors of both genders (male=50.6%, female=49.4), whereas less than one fourth (18.1%) respondents were illiterate. As far as experience, the median years of work experience were 3 years with an inter-quartile range of 6 and nearly more than half(57.8%) of respondents attended the food training program. Regarding awareness, less than half(44.6%) of respondents had an adequate level of awareness regarding street food hygiene whereas a level of awareness regarding street food hygiene was significantly associated with attending a food training program at $p=0.012$ level of significance. **Conclusions:** In conclusion, a considerable proportion of vendors are not aware of street food hygiene. Attending food training tends to influence the level of awareness of street food hygiene. So, it is recommended that the local level management committee of street food vendors should make a concerned effort to provide food training regarding street food hygiene.

KEYWORDS: Street Food Vendors, Street Food Hygiene, Assess Level of Awareness.

INTRODUCTION

Street foods are a variety of ready to eat foods and beverages which are prepared or sold by vendors in public places or streets.^[1] The trend of street food is popular day by day as they are tasty and easily available to people having a hasty lifestyle.^[2] Street foods like panipuri, chatpate are almost famous in all cities of Nepal among all aged people, especially adolescents girls.^[3]

Despite its popularity, street food is a source of food-borne diseases to the public, mainly resulting from poor hygiene practices.^[2] World widely, over the past 60 years approximately 30% of all emerging infections were transmitted through food.^[4] It is believed that mishandling of foods or poor food hygiene among street food vendors leads to food-borne illness. A study showed that 97% of all food-borne illness is due to improper food handling.^[5] Lack of proper understanding regarding food hygiene and food safety practice among vendors

make street foods a source of food-borne disease and perceived as a public health risk.^[6] It was observed in a study conducted by Kalua that awareness in terms of knowledge positively influences the formation of attitude that is changed into practice.^[7] Hence, their awareness regarding street food hygiene are essential to understand.

Very few studies have been conducted on street food hygiene in developing countries like Nepal. Hence, there is a dearth of knowledge regarding it. This study was undertaken to determine a level of awareness regarding street food hygiene and its association with selected variables.

METHODS

A descriptive cross-sectional study design was adopted to find out awareness regarding street food hygiene among street vendors of Bharatpur Metropolitan city near a Narayani River Bank area. The study setting of the study was conducted in Narayani River Side and

Jorkusum Park located in Bharatpur Metropolitan City. The research was done for 2 weeks period from June 30, 2019, to June 13, 2019.

Research ethical approval was obtained from Chitwan Medical College (CMC)- Institutional Review Committee (IRC), Bharatpur 10, Chitwan. Permission was obtained from the Samyukta Panchtol Bikas organization who used to manage the street food vendors of a selected area. Informed consent was taken from each respondent before data collection by explaining the purpose of the study. Respondent dignity was maintained by allowing them to terminate their participation at any time during the data collection period without any penalty and given assurance about the confidentiality of the data.

Those street foods vendors who were found in the selected area (Narayani Riverside, Jorkusum park) and sold foods items like Chatpate, Panipuri, Momose, and Chouwmeen, who was directly deal with food preparation while meeting during an interview on shop

within two weeks and agreed to participate in the study was included in this study.

Sample selection had been done by using the Non-probability Consecutive sampling method. All the vendors who were available in the selected area for 2 weeks were taken as a sample. So, the sample size was 83.

RESULTS

Out of 83 respondents, the respondents were from age between 18 to 65 years and median age of respondents was 34 years with inter-quartile range of 12. Regarding gender, half (50.6%) of respondents were male and rest were female. Regarding marital status, almost all (92.8%) respondents were married whereas only 7.2% of respondents were unmarried. Regarding religion, majority of (86.7%) respondents were Hindu and remaining were non Hindu whereas regarding education majority of (81.9%) respondents were literate only 18.1% of respondents were illiterate.

Table 1: Respondents' Socio Demographic Characteristics n=83.

Variables	Frequency	Percentage
Age in year		
< 34 years	41	49.4
≥ 34 years	42	50.6
<i>Median:34,IQR=(Q3-Q1)=(39-27),Max=65 ,min= 18</i>		
Gender		
Male	42	50.6
Female	41	49.4
Marital Status		
Married	77	92.8
Unmarried	6	7.2
Religion		
Hindu	72	86.7
Non-Hindu*	11	13.3
Education Status		
Literate	68	81.9
Illiterate	15	18.1

Non Hindu= Buddhists, Islam, Christian*

Among 83 respondents, nearly two-thirds (61.4%) had a shop of both panipuri and chatpate. Regarding the preparation site of food, slightly more than half (54.2%) used to prepare food at both shop and home. Regarding working experience, the median years of work experience of respondents were 3 years with an interquartile range of 6. Similarly, regarding food training, slightly more than half (57.8%) had attended the food training program. Regarding registration of shop, less than half(45.8%) had registered their shop.

Table 2: Respondents' Work-related Characteristics n=83.

Variables	Frequency	Percentage
Type of shop		
Momose only	26	31.3
Momose + Chauwmeen	2	2.4
Chatpate only	44	8.0
Chatpate + Panipuri	51	61.4
Preparation site of food		
At home	13	15.7
At shop	25	30.1
At home + at shop	45	54.2
Working experience of respondents		
≤3	44	53.0
>3	39	47.0
<i>Median:3,IQR=(Q3-Q1)=(7-1),max=28 min=0.25</i>		
Attending food training by respondent		
Yes	48	57.8
No	35	42.2
Registration of shop		
Yes	38	45.8
No	45	54.2

Table 3: Respondents' Awareness Regarding Food Hygiene n=83.

Statements	Correct response (frequency/percent)
Cleaning of workplace helps to prevent food borne diseases	78 (94.0)
Long finger nails cause contamination of food with food-borne diseases	77(92.8)
Cuts or abrasion on food handlers cause food contamination	77(92.8)
Abdominal pain, diarrhea can occurs as a symptoms after eating contaminated food	80(96.4)
Cuts and abrasion on food handlers should left uncovered while preparing foods*	77(92.8)
Hands should be washed with soap and water before handling food	79(95.2)
Tap water is safe for preparation of food*	46(55.4)
The appropriate method of washing vegetables is before cutting	79(95.2)
The appropriate method of storage of food for long time is in room temperature after its preparation*	62(74.7)
Raw food and cooked food can be kept in same container*	75(90.4)
The best method to clean utensils is only by water after its uses*	62(74.7)
Keeping in contact with rats/insects cause cross-contamination of food	78(94.0)
Refrigerating foods kills harmful bacteria*	30(36.1)
Trim nails once or twice a week	77(92.8)
Wearing of apron while preparing and serving food	5(6.0)
Covering of hair while preparing and serving food	11(13.3)
Used to clean equipment like knife, chopping board which is used for food preparation before reusing on another foods	75(90.4)
Used to serve food by bare hand*	25(30.1)
Use disposable utensils to serve the food*	43(51.8)
Used to cover foods after preparing it	63(75.9)
Used to store remaining foods in normal temperature*	65(78.3)
Working place and surroundings are free from insects and rodents	51(61.4)
Use dustbins for collection of waste	80(96.4)

* Negative response question

Among all respondents, less than half (44.6%) of respondents had an adequate level of awareness regarding street food hygiene whereas 55.4% had an inadequate level of awareness regarding street food hygiene.

Table 4: Respondents' Level of Awareness Regarding Street Food Hygiene.

Level of awareness	Frequency	Percentage
Adequate awareness (\geq mean average score)	37	44.6
Inadequate awareness ($<$ mean average score)	46	55.4
Total	83	100.0

Mean \pm S.D:17.20 \pm 2.11, max=22, min=12

Level of awareness of street food hygiene is statistically significant with attending of food training ($p=0.012$). However, there is no significant association between the level of awareness and selected socio-demographic and work related variables such as age($p=0.573$),

gender($p=0.573$), marital status($p=1.000$), religion ($p=0.101$), education status ($p=0.123$), type of shop($p=0.401$), preparation site of food($p=0.869$), working experience($p=0.786$) and registration of shop ($p=0.175$).

Table 5: Association between Respondents' Level of Awareness Regarding Street Food Hygiene and Variables n=83.

Variables	Level of Awareness		χ^2	p-value
	Adequate No. (%)	Inadequate No.(%)		
Age in year				
<34	17(41.5)	24(58.5)	.318	0.573
\geq 34	20(47.6)	22(52.4)		
Gender				
Male	20(47.6)	22(52.4)	0.318	0.573
Female	17(41.5)	24(58.5)		
Marital status				
Married	34(44.2)	43(55.8)	-	.000€
Unmarried	3(50.0)	3(50.0)		
Religion				
Hindu	35(48.6)	37(51.4)	-	.101€
Non Hindu	2(18.2)	9(81.8)		
Education status				
Literate	33(48.5)	35(51.5)	2.378	0.123
Illiterate	4(26.7)	11(73.3)		
Type of shop				
Momose only	10(38.5)	16(61.5)	3.018	0.401€
Momose + chauwmeen	0(0.0)	2(100.0)		
Chatpate only	1(25.0)	3(75.0)		
Chatpate + Panipuri	26(51.0)	25(49.0)		
Preparation site of food				
At home	5(38.5)	8(61.5)	0.280	0.869
At shop	11(44.0)	14(56.0)		
Both	21(46.7)	24(53.3)		
Working Experience in year				
\leq 3year	19(43.2)	25(56.8)	0.074	0.786
>3 year	18(46.2)	21(53.8)		
Attending food training				
Yes	27(56.2)	21(43.8)	6.276	0.012
No	10(28.6)	25(71.4)		
Registration of shop				
Yes	20(52.6)	18(47.4)	1.840	0.175
No	17(37.8)	28(62.2)		

Significance level at 0.05, € Fisher's exact test

DISCUSSION

The cross-sectional study was conducted on 83 street food vendors to find out the awareness regarding street food hygiene among street food vendors at a selected place of Bharatpur Metropolitan City.

In this study, respondents were age between 18 to 65 years and the median age of respondents was 34 years with an inter-quartile range of 12 and also noted a nearly equal percentage of participants of both genders. Almost all(92.8%) respondents were married and a majority(86.7%) followed the Hindu religion whereas

less than one-fourth (18.1%) of respondents were illiterate.

Regarding work-related characteristics, nearly two-thirds (61.4%) of food observed to be of both Chatpate and Panipuri. The study revealed that nearly more than half (54.2%) prepared their food at home and market place, followed by 30.1% at their own shop and 15.7% at home and bring at a market place. As far as experience, the median years of work experience were 3 years with an inter-quartile range of 6. Concerning training, nearly more than half (57.8%) of respondents attended a food training program whereas nearly more than half (54.2%) did not register their shop.

In this study, almost all (96.4%) of respondents were aware of food-borne symptoms which were similar to the study in Ghana with a score of 97.5%.⁸ Almost similarity was also found in the study in Chidambaram, India with a score of 92%.^[1] Regarding using an apron and cap as protective devices the majority (94% and 86.7%) of respondents didn't use an apron and covered hair respectively. An almost similar response was obtained from the study in Noida, Uttar Pradesh, India as a majority of respondents didn't use an apron and cover hairs with scores 76.8% and 79.6% respectively.^[9]

In this study, nearly half (44.6%) of respondents had an adequate level of awareness and 55.4% had an inadequate level of awareness regarding street food hygiene which was supported by a study conducted in Sri Lanka in terms of knowledge which showed 59.6% have a good knowledge regarding food hygiene.^[10] In contrast to this, a similar study was conducted in Ghana revealed that good awareness of food and personal hygiene with a score of 90%. The reason for the difference might be due to 82.7% had got knowledge about food hygiene from a different source in the previous study whereas only 57.8% had got training regarding food hygiene in this present study.^[11]

Regarding the association between independent variables and level of awareness, the current study showed statistically significant with attending of food training ($p=0.012$) which was supported by a study conducted in Nigeria which revealed a significant association of level of food hygiene practice with attending food training.^[12]

The study population was confirmed only to street food vendors of Narayani Riverside and Jorkusum Park of Bharatpur Metropolitan City near a Narayani river bank. The study findings may not be utilized to represent the whole country as the sample size is small and is conducted at a particular time of 2 weeks period.

CONCLUSIONS

This study can be concluded that more than half of the respondents had an inadequate level of awareness regarding street food hygiene and attending food training are associate with a level of awareness regarding street

food hygiene Hence, food training should be provided to the street food vendors regarding street food hygiene to uplift the awareness for the effective food handling.

Conflict of Interest

None.

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