



Knowledge, Attitude and Practice (KAP) of Street Food Vendors in Kathmandu

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Abstract

The effectiveness of technical training to the street food vendors was evaluated based on Knowledge, Attitude and Practice criteria with limited samples in three districts of Kathmandu valley. Total of 120 vendors were included in the study, where 60 vendors had food safety training from Department of Food Technology and Quality Control, and 60 vendors who had never attended any technical training on food safety. Knowledge, Attitude and Practice was assessed with pre-tested semi-structured questionnaire. Descriptive, mean difference and bivariate analyses were done for the result and discussion. Significant difference (p -value < 0.05) was found in Knowledge, Attitude and Practice between street food vendors with and without food safety training. Street food vendors with food safety training showed better result as compared to those without food safety education. Good knowledge, good attitude and good practice were found to be more likely in groups with food safety training with odds ratio of 4.41, 2.89 and 2.62, respectively. Good knowledge and good attitude towards food were found to increase the chance of getting good practice when compared to poor knowledge and poor attitude.

Keywords: Knowledge; Attitude; Practice; Street Food Vendor; Safety

Introduction

A vendor is a person who serves goods in street for sale to the public without having a permanent constructed structure. Street vendors are generally stationary which means that they occupy space on the roadways or other public or private spaces but a mobile vendor is the one who moves from one place to another carrying their goods on push carts, wheelbarrows, trucks or even carrying on their heads [1]. According to Food and Agriculture Organization (FAO), street foods are ready to eat processed foods and beverages that are or sold in streets or other similar places. This emphasizes the location i.e. the street, with foods sold either from pushcarts or bicycles or baskets or balance poles or from stalls without any permanent walls. This distinguishes features between

street food vendors and a restaurant is just a formality in food service operations [2]. With the growing population in Kathmandu Valley, the trend of food vendors has been increasing significantly. The street foods consist of varieties of fast foods like pani puri, chatpate, stick food, mo:mo, soda drinks, etc. The food vendors generally are surrounded by people, often in the evening time for savory taste [3]. Nowadays, globalization has caused differences in people's food consumption habits. In developing countries, there is a rising of out of home food consumption practices and causing differences in consumption styles [4]. Accordingly, in recent years people in developing countries have spent most of their disposable income on food consumption, which has turned street foods into alternative sources of nutrition [5]. According to FAO 2007, food is consumed each day by 2.5 billion people around the world [6,7].

The probability of occurring diseases outbreaks is linked to street foods and has remained a threat in many parts of the world. A lack of knowledge among street food vendors about the causes of food-borne disease is a major risk factor. Although many consumers attach importance to hygiene in selecting a street food vendor, consumers are often unaware of the health hazards associated with street vended foods [8]. Food safety refers to handling, preparing and storing food in a way to best reduce the risk individual becoming sick from food borne illness [9]. The density of population in urban area of Nepal has increased the demand for street food, and as such there has been increasing the number of varieties of food sold by the vendors. However, less attention has been paid to the health and safety of the consumer. In most places the street foods are sold open in unhygienic surroundings with houseflies, fruit flies and airborne dust as the source of contamination. On the other hand the consumers have not been aware about the risk associated with street food. Children are the most vulnerable group of people who are at the risk of health problem associated with food. These prime consumers of street food are easily lured by the cheap street foods. As such the street food vendors are generally found near the areas of the school in Nepal [10]. Unsafe food and unhygienic food handling practices poses global health issues, affecting everyone. Different aged group from Infants, young children, pregnant women, the elderly and those with an underlying illness or depressed immunity are particularly vulnerable. A vicious cycle of diarrhea and malnutrition is created by unsafe food, threatening the nutritional status of the most vulnerable. When food supplies are insecure and unhygienic, people often tend to shift to less healthy diets and consume more unsafe foods in which hazards pose health risks [11]. Urbanization, modernization and increasing trend of travel, have increased the number of people buying and eating food prepared in public places. Globalization has triggered the growing consumer demand for a wider variety of foods, resulting in an increasingly complex and longer global food chain [12]. It has been estimated that each year 1.8 million people die with diarrheal diseases, and most of these cases can be attributed due to contaminated food and water. Though the core messages of the Five Keys to Safer Food are (I) keep clean; (II) separate cooked and raw food; (III) cook thoroughly; (IV) keep food at safe temperatures, and (V) use safe water and raw materials, poster has been translated into more than forty languages, and is being used to spread throughout the world [13], but still minimum death of 30,000 and morbidity of 3.3 episodes per child has been estimated due to diarrhea in the world, where Nepal hasn't been

remain untouched. The reasons behind the major challenges are inadequate supply of safe water, improper sanitation and living conditions [14]. So, this study is aimed to investigate the knowledge, attitudes and practices of street food vendors regarding food safety before and after training to them.

Material and Methods

A quantitative study design utilizing a quantitative method was used to describe the knowledge, attitude and practice (KAP) of street food vendors. This design was chosen as it would provide information on the KAP of the population under study. It made possible the collection of information from a large group and is relatively inexpensive, and used in a short space of time. Samples were taken from Kathmandu, Bhaktapur and Lalitpur districts. Street vendors of the three districts with or without food safety training were chosen for the study. Training manual was same for each training, so there was no bias in the training. Food vendors who had food safety training from Department of Food Technology and Quality Control (DFTQC) were contacted through phone and visited to their locations for the interviews. Random street food vendors were selected for group without food safety education. The vendors were chosen based on the inclusion and exclusion criteria situated in Kathmandu valley with and without food safety training.

The inclusion criterion was

Street food vendors who couldn't communicate well.

Whereas an exclusion criterion was

Street food vendors who refused to participate.

Non-probability, convenience sampling technique was used. Total 120 street food vendors were included in the study. Sixty street food vendors who were participated in food safety training of DFTQC from three districts (20 from each district), and to match the group, 60 street food vendors without food safety education (20 from each district) were included in the study. The training was conducted in Kathmandu on December 15, 20, 21, 25; in Bhaktapur on December 26, and in Lalitpur on 27th of December, 2019.

Data collection

Data of KAP were collected using standard questionnaire. Face to face interview utilizing a semi-structured questionnaire was used.

Data collection tool

A well-structured, pre-tested questionnaire was used to secure answers from the respondents [15]. The questionnaire had 3 sections; the first section included questions related to knowledge of street food vendors. The second section concerned about their attitude towards food safety, and the third section dealt about practices of different food handlers while cooking or serving foods. Also, question included food safety training by food handlers. Food safety training refers to any training or classes taken from any certified body or firm which may be governmental, non-governmental agencies or may be any international non-governmental organizations.

Knowledge

Knowledge is the acquired information and understanding of an individual. This section included questions related to knowledge of food handlers on food hygiene, microbiological contamination of food, food borne illness, cleanliness of work place, knowledge on general food borne diseases, communicable and non-communicable diseases. There were 25 set of questions that defined food safety knowledge. Knowledge was divided into two parts: good knowledge with score of greater than or equal to 17, and poor knowledge with score 16 or below [15].

Attitude

Attitude is the mental state involving belief, perception, values of an individual person. This included questions which open up attitude towards food handling, consciousness about contamination of food and related illness, their responsibilities as a food handler, knowledge on safe and hygienic practices like not painting fingernails, keeping fingernails short, cleanliness of towel for swabbing hands or utensils. There were 20 attitude related questions that defines food safety attitude. Attitude was divided into two parts: good attitude with score 14 and above, and poor attitude with the score of 13 or less [15].

Practices

Practice is the application of idea or method. This consists of questions like proper washing of hands before touching prepared food, use of apron, cleanliness of cooking space and storage, preparing meal in advance. There were total 11 questions related to practice of food handlers. Practice was divided into two parts depending upon the score: good practice with the score of 8 and above, and poor practice with the score of 7 and less [15].

Study variables

- Dependent variable
- Knowledge, Attitude and Practice (KAP)
- Independent variables
- Food Safety Education

Data management and analysis

Data processing was done by creating variables, entering, coding and tabulation of the data, and analysis was done using SPSS version 20 software and Ms Excel. Percentage, proportion was used as appropriate for descriptive of the data. Descriptive and inferential statistics (mean and standard deviation) was preferred for data entry and analysis. Statistical tests were used to analyze the association between dependent variable and independent variables of the study.

Validity and reliability

Already pre-tested questionnaire for street food vendors was used. While entering the data in the SPSS dataset, the data was re-checked twice for its accuracy so that any discrepancies that could occur in entering the data in dataset could be corrected on time before data analysis. Re-investigation was made on the partially filled questionnaire and corrected the discrepancies. Data set with complete information was considered for the final data analysis.

Ethical consideration

Permission was taken from the research team of the Department of Food Technology and Quality Control (DFTQC). Privacy and confidentiality of collected information was ensured at all level. Local language (Nepali) was used for interview.

Result and Discussion

The result of the work investigated the knowledge, attitude and practice of street food vendors regarding food safety. Mean age of the participants was 29 ± 2.5 among education group, and 28.5 ± 3 among no education group. Number of males were 35 (58.3%) and 38 (63.3%) in street vendors group with food safety training, and without food safety training, respectively. Similarly, number of females were 25 (41.7%) and 28 (23.7%) in street vendors group with food safety training and without food safety training, respectively. Street food vendors with primary education were 26 (43.3%) and 30 (50%) in group having food safety training and in a group without food safety education, respectively Street food vendors

with secondary education were 21 (35%), and 18 (30%) in a group having food safety education and in a group without food safety education, respectively. Street food vendors with +2 or higher education were 13 (21.7%) and 12 (20%) in group having food safety education and in a group without food safety education, respectively.

Variables	Training group (N/%)	Non training group (N/%)
Age (Mean)	29 ± 2.5	28.5 ± 3
Education Status		
Primary education	26 (43.3%)	30 (50%)
Secondary education	21 (35%)	18 (30%)
Plus 2 and higher	13 (21.7%)	12 (20%)
Duration of work		
< 5 years	16 (26.66%)	18 (30%)
5-10 years	27 (45%)	28 (46.66%)
> 10 years	17 (28.33%)	14 (23.33%)

Table 1: Socio-demographic characteristics of participants (n = 120).

Education and work experience characteristic of the vendors.

Duration of work which is less than 5 years was found to be 16 (26.66%) in training group, and 18 (30%) in non training group. Duration of work which is 5-10 years was found to be 27 (45%) in training group, and 28 (46.66%) in non training group. Duration of work which is more than 10 years was found to be 17 (28.33%) in training group, and 14 (23.33%) in non training group.

Food safety knowledge

Food safety knowledge of street food vendors were assessed using 25 different questions in a group with food safety training, and a group without food safety training which is shown in table 2. Majority of participants knew about hand washing, 54 (90%) in group with food safety training, and 47 (78.3%) in group without food safety training. Knowledge of about proper cleaning of utensils was mostly familiar in both groups, 51 (85%) in a group with food safety training, and 43 (71.7%) in a group without food safety training. Only about half of the participants had knowledge regarding eating and drinking in a workplace, 31 (51.7%) in a group with food safety training, and 30 (50%) in a group without

food safety training. About typhoid fever, majority of participants of training group had good knowledge as compared to without training group, 47 (78%) in a group with food safety training, and 11 (18.3%) in a group without food safety training.

S. N.	Questions related to knowledge	With training Frequency (Yes/No)	Without training Frequency (Yes/No)
1	Hand washing	54/6	47/13
2	Use of gloves	38/22	15/45
3	Proper cleaning of utensils	51/9	43/17
4	Eating and drinking at workplace	31/29	30/30
5	Preparation of food in advance	35/25	37/23
6	Reheating of cooked foods	55/5	37/23
7	Risk of food poisoning to children, healthy adults, pregnant women and older individuals	56/4	31/29
8	Typhoid fever can be transmitted by food	47/13	11/49
9	AIDS can be transmitted by food	9/51	15/45
10	Diarrhea can be transmitted by food	57/3	49/11
11	Washing utensils with detergent	57/3	50/10
12	Microbes are on skin, nose and mouth of healthy food handler	53/7	29/31
13	Clean is same as sanitized	24/36	31/29
14	Microorganisms contaminated food can be transferred by food handler's hand to hand	56/4	37/23

15	Correct temperature for storing perishable food is 5 degrees	36/24	25/35
16	Ideal place to store raw meat in refrigerator is on bottom shelf	46/14	24/36

Table 2: Food safety with good knowledge of participants (n = 120). (Good knowledge of the vendors).

S. N.	Questions related to knowledge	With training Frequency (Yes/No)	Without training Frequency (Yes/No)
17	Freezing kills all bacteria that may cause illness.	25/35	36/24
18	Contaminated food always have some change in color, odor or taste	15/45	54/6
19	Raw vegetables are at high risk of than under-cooked meat	42/18	34/26
20	Take leave when ill	54/6	24/36
21	Salmonella is among food borne pathogens	39/21	10/50
22	Hepatitis A virus is among pathogen	42/18	5/55
23	Swollen cans may contain microorganism that cause food poisoning	54/6	36/24
24	Hot, ready to eat food should be kept at temperature of 65 degree centigrade	46/14	31/29
25	Health status of workers should be evaluated before employment	56/4	15/45

Table 3: Food safety with poor knowledge of participants (n=120) (Cont.). (Poor knowledge of the vendors)

Good knowledge was found to be in 47 (78.3%) in a group with food safety training, and 23 (38.3%) in a group without food safety training.

Food safety attitude

Food safety attitude of street food vendors were assessed using 20 different questions in a group with food safety training and a group without food safety training which is shown in Table 4. Regarding attitude about microorganisms in cooked foods, vast difference was found between two groups, 58 (96.7%) in a group with food safety training, and 31 (51.7%) in a group without food safety training said “Yes” when asked about well-cooked foods are free of microorganisms or not. When asked about proper hand hygiene could prevent food-borne diseases or not, most of the participants in both groups had positive attitude, 57 (95%) in a group with food safety education, and 47 (78.3%) in a group without food safety training. When asked about food handlers who had abrasion or cut on their hands should not touch foods without gloves, huge difference was found in attitude between both groups, in a group with food safety training was 56 (93.3%), and 17 (28.3%) in a group without food safety training.

S. N.	Questions related to attitude	With training Frequency (Yes/No)	Without training Frequency (Yes/No)
1	Well-cooked foods are free of microorganisms	58/2	31/29
2	Proper hand hygiene can prevent food-borne diseases	57/3	47/13
3	Cleaning products can be stored together with food products	8/52	37/23
4	Raw and cooked foods should be stored separately	55/5	26/34
5	Check the temperature of refrigerators periodically	42/18	27/33
6	Defrosted foods should not be refrozen	49/11	33/27

7	Wearing mask is an important practice to reduce risk of food contamination	54/6	35/25
8	Wearing cap is an important practice to reduce risk of food contamination	57/3	41/19
9	Safe food handling is an important part of my job responsibilities	58/2	27/33

Table 4: Food safety with good attitude of participants (n = 120). (Good attitudes showed by the vendors)

17	Wearing gloves is an important practice to reduce risk of food contamination	58/2	45/15
18	Health status of workers should be evaluated before employment	53/7	28/32
19	The best way to thaw a chicken is in a bowl of cold water	47/13	38/22
20	Food handlers who have abrasion or cut on their hands should not touch foods without gloves	56/4	17/43

Table 5: Food safety with poor attitude of participants (n = 120) (Cont.) (Poor attitude showed by vendors).

S. N.	Questions related to attitude	With training Frequency (Yes/No)	Without training Frequency (Yes/No)
10	Beards could contaminate food with food borne pathogens	57/3	21/39
11	Long and painted nails contaminate food with food borne pathogens	57/3	19/41
12	Learning about food safety through training is important to me	58/2	11/49
13	Food handlers can be the source of food borne outbreaks	49/11	9/51
14	Eggs must be washed immediately after delivery	35/25	31/29
15	Dish towel can be source of contamination	57/3	29/31
16	Knives and cutting boards should be properly cleaned to prevent contamination	57/3	34/26

Attitude was scored as 13 or below as poor understanding and above 13 as good understanding. Good attitude was found to be in 43 (71.6%) in a group with food safety training, and 28 (46.6%) in a group without food safety training.

Food safety practice

Food safety practice of street food vendors were assessed using 11 different questions in a group with food safety education and a group without food safety training which is shown in Table 6. Good practice was in both groups regarding washing hands properly before handling food, 59 (98.3%) in a group with food safety training, and 43 (71.7%) in a group without food safety training. Difference was found between good practice regarding wearing apron while handling food, in a group with food safety training was 48 (80%), and 17 (28.3%) in a group without food safety training.

Good practice was found in a group with food safety training, 45 (75%), and 31 (51.6%) in a group without food safety training.

KAP in training and non- training group

Good knowledge, attitude and practice were found in the group with food safety training in comparison to non training group which is shown in the figure below.

S. N.	Questions related to practice	With training Frequency (Yes/No)	Without training Frequency (Yes/No)
1	Do you wear gloves during distribution of food	51/9	31/29
2	Do you wash hands properly before handling food	59/1	43/17
3	Do you wear apron while handling food	48/12	17/43
4	Do you wear mask while handling food	20/40	2/58
5	Do you eat or drink at your work place	25/35	39/21
6	Do you wear nail polish when handling food	7/53	25/35
7	Do you prepare meal in advance	40/20	49/11
8	Do you properly clean store before storing new food products	55/5	25/35
9	Do you wash fruits with warm water	35/25	15/45
10	Do you see manufacture and expiry date before buying products	50/10	29/31
11	Do you use sanitizer when washing service utensils (plates, mugs and spoons)	25/35	7/53

Table 6: Food safety practice of participants (n = 120).
(Food safety practice of the vendors).

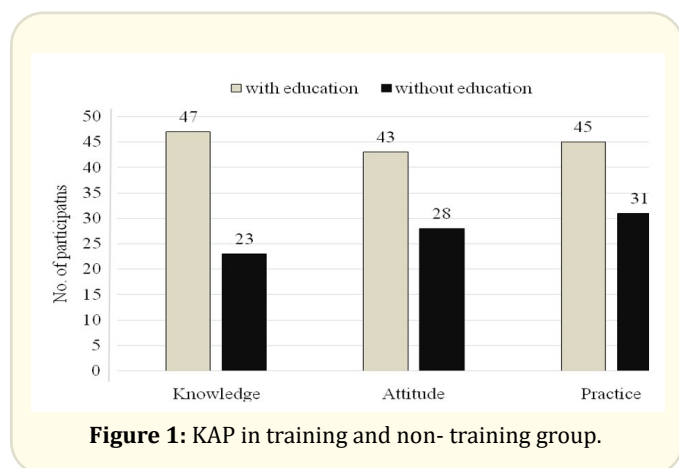


Figure 1: KAP in training and non- training group.

Statistical analysis (mean comparison)

Mean score of knowledge in group with food safety training group was 17.75 ± 3.34 , and in group without food safety training group was 13.98 ± 4.97 . There was significant difference in two groups regarding knowledge score as indicated by p-value < 0.001 . Mean score of attitude in group with food safety training group was 14.5 ± 3.85 , and in group without food safety training group was 11.96 ± 4.09 . Likewise, there was significant difference in two groups regarding attitude score as indicated by p-value < 0.001 . Mean score of practice in group with food safety training group was 7.95 ± 1.48 , and in group without food safety training group was 6.86 ± 1.77 as shown in table 7.

	With training Mean \pm SD	Without training Mean \pm SD	T-test	p-Value
Knowledge	17.75 ± 3.34	13.98 ± 4.97	5.38	< 0.001
Attitude	14.5 ± 3.85	11.96 ± 4.09	4.17	< 0.001
Practice	7.95 ± 1.48	6.86 ± 1.77	5.56	< 0.001

Table 7: Comparison of mean difference.
(Comparative means difference in knowledge, Attitudes and Practices of Participants before and after training).

There was a significant difference in knowledge scores between two groups. The mean score in group with food safety training was higher as compared to group without food safety training. These findings similar to several other studies reported that there was a significant difference in knowledge scores with and without food safety training [16]. Twelve restaurants participated in this study were divided into two groups: the intervention group with training, and the control group without food safety training. Employee knowledge of the intervention group also showed a significant improvement in their score, increasing from 49.3 before the training to 66.6 after training [17].

Similarly, there was significant difference in attitudes scores between two groups. The mean score in group with food safety training was higher as compared to group without food safety trainings. While a majority of the respondents had a good level of knowledge (81%) and positive attitude (71%) about food hygiene, and 68% possessed good hygienic practice. It was revealed that 32% and 46% of the respondents received training on food hygiene and environmental health worker inspection, respectively. Training af-

affected food hygiene and food hygienic practices of the food handlers. Food hygiene training affected sanitary hygienic conditions in hospital kitchen settings. It was also revealed that there were statistically significant relationships between knowledge, attitude, formal training on food hygiene and the level of food safety practices [18].

Bivariate analysis between food safety training and knowledge

Good knowledge was 4.41 times likely to be found as shown in Table 8 in the group with food safety training when compared to group without food safety training. Qualitative approach was used for study, and cumulative grade points were given for the questions. Study revealed that training improved food safety knowledge, beliefs and gave positive impacts on food handling practices [19]. Hence, training seems vital to ensure that food handlers have all the required amount of awareness and education to meet the food hygiene requirements, although this does not necessarily lead to a positive change in the management and food handling [20].

Variables		Good knowledge	Poor knowledge	Odds Ratio (OR)	p-value
Food safety training	Yes	47	13	4.41 (1.9-9.8)	0.001
	No	23	37	1	

Table 8: Bivariate analysis between food safety training and good knowledge.

(Analysis between food safety training and good knowledge).

Bivariate analysis between food safety training and attitude

Good attitude was 2.89 times likely to be found in the group with food safety training when compared to group without food safety training. Giving good training among the food handlers led to the improvement of their attitude, as well as their practices in food safety. This review also addressed the importance of the food handlers’ training, conflicting views about the efficiency of training staffs to improve food safety practices. It also provided a critical appraisal on training program with positive impact on practice and attitude [21,22].

Variables		Good knowledge	Poor knowledge	Odds Ratio (OR)	p-value
Food safety training	Yes	43	17	2.89 (1.35-6.16)	0.06
	No	28	32	1	

Table 9: Bivariate analysis between food safety training and good attitude.

(Analysis between food safety training and good attitude).

Bivariate analysis between food safety training, knowledge, attitude and practice

Good practice was 2.62 times likely to be found in the group with food safety training when compared to group without food safety training. Good practice was likely to be found 3.31 times in group with good knowledge regarding food safety when compared to group with poor knowledge regarding food safety. Good practice was found to be 4.27 times in group with good attitude regarding food safety when compared to group with poor attitude regarding food safety.

Variables		Good practice	Poor practice	Odds Ratio (OR)	p-value
Food safety training	Yes	45	15	2.62 (1.21-5.69)	0.015
	No	31	29	1	
Knowledge	Good	52	22	3.31 (2.33-7.12)	0.019
	Poor	33	13	1	
Attitude	Good	51	20	4.27 (6.25-11.2)	0.027
	Poor	37	12	1	

Table 10: Bivariate analysis between food safety training, good knowledge, attitude and practice.

(Analysis of the variables).

There was no significant difference ($p > 0.05$) in practice scores of pre- and post- food hygiene training. It has reported that high prevalence of training is not guaranteed to change food handlers' practices [23]. Findings in this study showed the past and present training did not have any effect on their practices. Improvements in training module was recommended to educate food handlers imparting good hygienic practices that would able to reduce food poisoning risks in their food preparation activities. Study found that knowledge about food safety and beliefs in education have positive impact on practice [24], and the present findings showed that mean score of KAP was significantly higher in the group with food safety training as compared to group without food safety training.

Conclusion

The growing population of dwellers in Kathmandu has increased the demand for street food, and as such there has been increased in the number and varieties of food sold by the vendors. However, less attention has been paid to the health and safety of the consumers. In most places, the street foods are sold open in unhygienic surroundings with houseflies, fruit flies and airborne dust as the source of contamination. Unsafe food and unhygienic food handling practices poses global health threats affecting everyone. Infants, young children, pregnant women, the elderly people and those with an underlying illnesses or depressed immunity are particularly vulnerable. A vicious cycle of diarrhea and malnutrition is created by unsafe food, threatening the nutritional status of the most vulnerable. The Centers for Disease Control and Prevention (CDC) defines a food borne illness outbreak as an occurrence of two or more cases of a similar illness from the same food item. The major objective of this research was to compare the knowledge, attitude and practice between street food vendors with and without food safety training.

A descriptive study design utilizing a quantitative method was to evaluate the effectiveness of technical training to street food vendors in three districts of Kathmandu Valley. This design was chosen as it would provide information on the knowledge, attitudes and practices of the population under study. It made the collection of information possible from a large group, and cost effective in a short space of time. Samples were taken from Kathmandu, Bhaktapur and Lalitpur districts. Study was conducted for six months. Street vendors of Kathmandu, Bhaktapur and Lalitpur

districts with or without food safety education were chosen for the study. Street food vendors who had food safety training from the DFTQC were contacted orally, and visited to their locations for the interviews. Random street food vendors were selected for next group without food safety training. Inclusion criteria were street food vendors situated in Kathmandu, Bhaktapur and Lalitpur districts with and without food safety education and who could communicate well. Exclusion criteria were street vendors who refused to participate. Non-probability, convenience sampling technique was used. Total of 120 street food vendors were included in the study, where 60 street food vendors from three districts (20 from each district) had food safety training organized by DFTQC, and to match the previous group, 60 street food vendors without food safety training (20 from each district) were included in the study. The training was conducted in Kathmandu on December 15, 20, 21, 25, in Bhaktapur on December 26, and in Lalitpur on December 27, 2019. Data of KAP were collected using standard questionnaire. Face to face interview utilizing a semi-structured questionnaire was used. Dependent variable for the study was knowledge, attitude and practice whereas independent variable was food safety education. Good knowledge was found to be in 47 (78.3%) in a group with food safety education, and 23 (38.3%) in a group without food safety education. Attitude was scored as 13 or below as bad understanding and above 13 as good understanding. Good attitude was found to be in 43 (71.6%) in a group with food safety education, and 28 (46.6%) in a group without food safety education. Good practice was found to be in 45 (75%) in a group with food safety education, and 31 (51.6%) in a group without food safety education. There was a significant difference in knowledge scores between two groups. The mean score in group with food safety training was higher as compared to group without food safety training. There was significant difference in attitude scores between two groups. The mean score in group with food safety training was higher as compared to group without food safety training. There was a statistically significant difference in practice scores between two groups. The mean score in group with food safety training was higher as compared to group without food safety trainings. Good knowledge was 4.41 times likely to be found in the group with food safety training when compared to group without food safety training. Good attitude was 2.89 times likely to be found in the group with food safety training when compared to group without food safety training. Good practice was 2.62 times likely to be found in the group with food safety training when compared to group without food

safety training. Good practice was 3.31 times likely to be found in group with good knowledge regarding food safety when compared to group with poor knowledge regarding food safety. Good practice was 4.27 times likely to be found in group with good attitude regarding food safety when compared to group with poor attitude regarding food safety.

Conflict of Interest

The author declares there is no any conflict of interest exists.

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