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Research Article

Knowledge and Practice Regarding Food Hygiene among Small Food Restaurants Worker's in Dhaka City

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Abstract

Background: Food hygiene is a public health concern. An adequate supply of safe, wholesome and healthy food is an important to the health and well-being of humans. People can get sick when they eat contaminated food, this referred to as food borne disease. Food workers with poor personal hygiene and lack of awareness of important issues in preventing food borne diseases.

Objective: The purpose of this study was to assess knowledge and practice regarding food hygiene among small food restaurant's workers in Dhaka city.

Methods: A descriptive type of Cross-sectional study design was used to assess knowledge and practice regarding food hygiene among small food restaurant's workers in Dhaka city. A convenience sampling technique was used to select study participants. Data was collected using face to face interview with pretested structured questionnaire.

Results: Findings of the study shows that the marital status was very significantly related with practice regarding food hygiene. It means that married food worker had better practice about food hygiene. The study also revealed that practice regarding food hygiene was significantly related with go to hospital when feel sick. The study result also shows that knowledge is highly related with practice (r=.463, p=.000). It means if knowledge increase regarding food hygiene, then practice will increase. The rest of variables are not significantly related with practice regarding food hygiene.

Conclusion: The study findings may provide information to health care provider to establish awareness on food hygiene practice among food workers.

Keywords: Food workers; Knowledge; Food hygiene; Practice; Restaurants

Introduction

Food hygiene as all conditions and measures that are required during production, processing, storage, distribution and preparation of food to ensure that it is safe, wholesome and fit for human consumption [1]. Food hygiene seeks to preserve or promote health by ensuring the safety and wholesomeness of food. Food safety consists of a lot of principles adopted to protect food from any chemical, microbiological or other type of contamination that can render it unfit for human consumption [2]. Food handlers play a key role in maintaining food safety and preventing food borne illnesses [3].

In developed countries, up to 30% of the populations suffer from food borne diseases each year, although in developing countries up to 2 million deaths are estimated per year [4]. Moreover, in developing countries up to an estimated 70% of cases of diarrheal diseases are related with the consumption of contaminated food [5]. In Bangladesh the incident of food borne diseases is significantly high due to the densely populated nature, underdeveloped infrastructure and poor food hygiene practices [6]. About 30 million people experience one form of food borne disease each year in Bangladesh [7].

Insufficient food hygiene practice among food workers can lead to food borne diseases [8]. Food borne diseases are major health issues in developed and developing countries [4]. Food workers with poor personal hygiene working in eating establishments probably potential sources of infections of many in-

testinal Helminthes, protozoa, and pathogenic bacteria [4].

Several factors related to poor food hygiene practices. According to various studies, poor knowledge, poor liquid and solid waste management facilities, an absence of proper dish washing facilities, lack of basic sanitary facilities/infrastructures in food service establishments, negligence in safe food handling, inadequate food safety laws, managers training on food hygiene, inspection by regulatory body are major factors related to food hygiene practice in restaurant's [4,9].

In most studies there was a considerable gap in knowledge and practice of food hygiene among restaurant's food workers. Dhaka is the capital city of Bangladesh. There are two city corporations. It showed rapid increase in urbanization, with the resultant increment in the number of business catering establishments especially restaurants. A large number of people eat outside their home due to busy life. Above mention there is a lack of knowledge and food hygiene practice among the food workers. Due to unhygienic handling of food and eating contaminated food at outside so there may be chance to increase food borne disease. However, limited research carried out in Bangladesh to explore food hygiene practice. It is very essential to assess knowledge and practice regarding food hygiene among small food restaurant's workers. So, study result will be benefitted to health care provider to establish awareness on food hygiene practice among food workers.

Methods

Study design

A descriptive type of cross-sectional study design was conducted to assess knowledge and practice regarding food hygiene among small food restaurants' workers in Dhaka City.

Participants and Sampling

A descriptive study design was used to assess knowledge and practice regarding food hygiene among small food restaurants workers in Dhaka City in Bangladesh. The approval was obtained from the Institutional Review Board (IRB) of NIANER and BSSMU and from restaurant's manager. A total of 50 small food restaurants staff that had direct or indirect contact with food and at least one year work experience as food workers were enrolled in the study. The researcher was conveniently choosing the small food restaurants in Demra, Mugda, Zatrabari of south city corporation area due to availability of the study participants. Study was conducted from July 2021 to June 2022. A convenience sampling technique was used to select study participants. Researcher was using this sampling technique to find out participants in the selected restaurants. The participants of this study were estimated by using G-power analysis software. The sample size was calculated by an accepted minimum level of significant (α) o.o5, an expected power of 0.80 (1-β) and an estimated population medium effect size of 0.25. The actual sample size was 120. To reduce the attrition rate 20% more samples were added. Therefore, the total sample of this study was 144. For eligible subject are food workers having one-year practical experience of handling food at the selected restaurants, those who was willing to participate, food workers those who was available during the period of the study.

The Structured developed questionnaire was used to collect data through face-to-face interview. The structure interview questionnaires consist of three parts. Part 1A: Socio-demographic question consists of seven items. It includes information related to age, gender, marital status, educational level, occupational status, monthly income, working experience, and 1B was Health related Characteristics of the participants, such as currently suffering from any infectious diseases, have any hereditary diseases, go to hospital if feel sick, enough energy to perform daily activities, think about overall health etc. Part II: Food hygiene knowledge related questions. There are fourteen questions to assess knowledge of the participants through yes / no / do not know answers. For scoring the knowledge section score 1 was given to a correct answer. While score 0 was given to incorrect as well as do not know answers for the knowledge questions. In this study scores for knowledge varied from 1 to 14 points and was classified into three levels as follows: 1. high level: 12-14scores; 2. Moderate level: 9-11scores; 3. Low level: 1-8 scores [10].

Part III: Food hygiene Practice related questions. There are thirteen questions with 5-point Likert scale responses from 1=never, 2= rarely, 3=sometimes, 4= most of the time and 5= always. Also scores 1-5 was given to never to always answer for the practice section of the questionnaire. In this study scores for practice varied from 1 to 65 points and was classified into three levels as follows: 1. good level: 53-65scores; 2. Fair level: 39-52 scores; and 3. Poor level: 1-38 scores [10].

Results

Socio-demographic Characteristics of the participant's

The mean age of the participants was 28.75 years. The majority (95.1%) of the participants were male, and 60.4% were married. In occupation most of them, 41% were cooker, and 61.1% had passed their primary level. The respondents who had been working as food workers, as their monthly average income was 11329.8611 BDT and average experience 5.7292.

The majority of the participants, 90.3% have get enough energy to perform daily activities, and thought that their overall health is good. The study results also found that 95.8% didn't know currently suffer from any infectious diseases, 89.6% didn't know have any hereditary diseases and 86.8% didn't go to hospital when feel sick.

Knowledge regarding Food Hygiene among the participants

Total mean score of knowledge was M±SD (8.29±0.38). The most of the respondents, 97.9% knew that raw foods need to be stored separately from cooked food, 90.3% knew that hand washing before cooking reduces food contamination and diarrhea transmitted through contaminated food. 82.6 % knew that the same cutting board cannot be used for raw and cooked foods. 84.7% knew that foodborne illness can be acquired from consumption of contaminated food. 87.5 % foodborne disease can be transmitted through contaminated water. The majority of the respondents 86.1% had no knowledge about personal hygiene, 72.9% did not know dish towels can be a source of food contamination.

Practice regarding Food Hygiene among the participants (N=144)

Practice administration capacity was measured by using 13 items with 5-point Likert scale. Total mean score of food hygiene practice was M±SD (49.46±0.84). Out of 13 items the four highest practices are for "Wash hands before and after cooking (90.3%), Wash fruits and vegetables before serving (84.7%), Wash cutting boards, knives and plates used for raw

Table 1A: Distribution of Demographic Characteristics of the participant's (N =144).

Variables	Frequency	n (%)	M (SD)
Age			28.75±10.06430
Gender			
Male	137	95.1	
Female	7	4.9	
Marital Status			
Married	87	60.4	
Unmarried	57	39.6	
Education level			
Illiteracy	47	32.6	
Primary	88	61.1	
Secondary & above	9	6.3	
Occupational Status			
Table boy	31	21.5	
Server	54	37.5	
Cooker	59	41	
Monthly Income			11329.8611±5950.60178
Experience			5.7292±4.63978

Table 1B: Distribution of Health-related Characteristics of the participants (N =144).

Variables	Yes n (%)	No n (%)	Mean ±SD
Do you currently suffer from any infectious diseases? Dysentery, TB	6(4.2)	138(95.8)	.0417±.20052
Do you have any hereditary diseases? e.g., Diabetes, Hypertension	15(10.4)	129(89.6)	.1042±.30654
Do you go to hospital when you feel sick?	19(13.2)	125(86.8)	.1319±.33961
Have you get enough energy to perform your daily activities?	130(90.3)	14(9.7)	.9028±.29729
Do you think your overall health is good?	130(90.3)	14(9.7)	.9028±.29729
Total mean score			2.0834±0.28

Table 2: Distribution of Knowledge regarding Food Hygiene among the participants (N=144).

Variables	Correct n (%)	Incorrect n (%)	Mean ±SD
The term food hygiene means maintain hygiene during food processing & serving.	51(35.4)	93(64.6)	.3542±.47993
Use of gloves while serving food to reduce the risk of food contamination.	40(27.8)	104(72.2)	.2778±.44947
Raw foods need to be stored separately from cooked foods?	141(97.9)	3(2.1)	.9792±.14332
Hand washing before cooking reduces the risk of food contamination.	130(90.3)	14(9.7)	.9028±.29729
Diarrhea can be transmitted through contaminated food.	130(90.3)	14(9.7)	.9028±.29729
Personal hygiene can prevent food contamination.	20(13.9)	124(86.1)	.1389±.34704
The same cutting board cannot be used for raw and cooked foods.	119(82.6)	25(17.4)	.8264±.38010
Foodborne illness can be acquired from consumption of contaminated food.	122(84.7)	22(15.3)	.8472±.36103
Inadequate cooking or raw food like meat, chicken and vegetable can cause outbreak of foodborne illness.	110(76.4)	34(23.6)	.7639±.42617
Contaminated foods always have some change in odor or taste.	67(46.5)	77(53.5)	.4653±.50053
Cooked foods do not need to be thoroughly reheated?	50(34.7)	94(65.3)	.3472±.47775
Foodborne disease can be transmitted through contaminated water.	122(84.7)	22(15.3)	.8472±.36103
Dish towels can be a source of food contaminations.	39(27.1)	105(72.9)	.2708±.44594
Uncovered abrasion or cuts on fingers and hands can cause contamination of food.	49(34.0)	95(66.0)	.3403±.47546
Total mean score			8.29±0.38

meat before using them for other food (85.4%) and Store raw chicken or meat separately from cooked food (94.4%). Conversely the lowest practice is using an apron when cooking/ serving (96.5%).

Relationship between Demographic characteristics and practice of food hygiene among the participants

The study result showed that the marital status was very significantly correlated with practice regarding food hygiene. It means that married food worker had better practice about food hygiene. The study also revealed that practice regarding food hygiene was significantly associated with go to hospital when feel sick. The study result also shows that knowledge is highly correlated with practice (r=.463, p=.000). It means if knowledge increase regarding food hygiene, then practice will increase. The rest of variables are not significantly related with practice regarding food hygiene.

Discussion

The current study showed that the mean age of the participants were 28.75 years which ranging from 14-58 years. This finding nearly similar with another study conducted in Tehran to

Table 3: Distribution of Practice regarding Food Hygiene among the participants (N=144). Never = 1, rarely = 2, sometimes = 3, most of the time = 4, always = 5

Variables	1	2	3	4	5	Mean ±SD
	n (%)	n (%)	n (%)	n (%)	n (%)	
Wash hands before and after cooking	00	00	00	13(9.0)	130(90.3)	4.87±.500
Cooked food kept at room temperature for long time	14(9.7)	5(3.5)	27(18.8)	48(33.3)	50(34.7)	3.79±1.232
Use hand to cover mouth while coughing or sneezing	17(11.8)	00	19(13.2)	22(15.3)	85(59.0)	4.07±1.379
Wash fruits and vegetables before serving	00	00	00	21(14.6)	122(84.7)	4.81±.53
Read the expiry date before purchasing packaged food	81(56.3)	18(12.5)	18(12.5)	8(5.6)	18(12.5)	2.03±1.44
Wash eggs before cooking or frying it	23(16.0)	21(14.6)	51(35.4)	27(18.8)	21(14.6)	2.99±1.27
Wash cutting boards, knives and plates used for raw meat before using them for other food	00	00	3(2.1)	17(11.8)	123(85.4)	4.80±.58
Use an apron when cooking / serving	139(96.5)	00	00	2(1.4)	3(2.1)	1.12±.66
Store raw chicken or meat separately from cooked food	1(.7)	00	1(.7)	6(4.2)	136(94.4)	4.91±.41
Wash dishes with detergent and water after preparing food and before new usage	00	00	30(20.8)	62(43.1)	52(36.1)	4.15±.74
Wash hands before handling food	00	1(.7)	81(56.3)	42(29.2)	20(13.9)	3.56±.73
Cover cut with bandage and use gloves	1(.7)	16(11.1)	50(34.7)	48(33.3)	29(20.1)	3.61±.95
Protect cooked food from insects	00	00	2(1.4)	31(21.5)	111(77.1)	4.75±.46
Total mean score of practice						49.46±0.84

Table 4: Relationship between Demographic characteristics and practice of food hygiene among the participants (N= 144).

A. Demographic Variables	M±SD	t/F/r (P)
Age		.032(.708)
Gender		
Male	2.18±.40	.25(.801)
Female	2.14±.37	
Marital status		
Married	2.21±.44	1.47(.001)
Unmarried	2.12±.33	
Education level		
Illiteracy	2.12±.33	
Primary	2.20±.43	.603 (.548)
Secondary & above	2.2±.44	
Occupational status		
Table boy	2.12±.34	
Server	2.20±.40	.34(.709)
Cooker	2.18±.43	
Monthly Income		.059(.479)
Experience		.04(.593)

Table 4: (Cont.)

A. Health related characteristics		
Do you currently suffer from any infectious diseases? e.g., Dysentery, TB		
Yes	2.50±.54	1.47(.198)
No	2.16±.39	
Do you have any hereditary diseases? e.g., Diabetes, Hypertension		
Yes	2 .33±.48	1.30(.210)
No	2.16±.39	
Do you go to hospital when you feel sick?		
Yes	2.31±.47	1.35(.019)
No	2.16±.38	
Have you get enough energy to perform your daily activities?		
Yes	2.18±.40	1.35(.019)
No	2.14±.36	
Do you think your overall health is good?		
Yes	2.17±.40	-.32(.743)
No	2.21±.42	
Knowledge on food hygiene		.436(.000)

assess knowledge, attitude, and practice among food handlers [11]. Most of the study participants were male which was similar with previous study conducted in Sylhet city, Bangladesh [8]. In the current study identified that more than half of the participants were married. [12] conducted a study in Kerman, Iran their study result also shows that more than half of the participants were married. In this study majority of the participants had primary level education which similar with previous study conducted by [8]. In the present study identified that the most of the participant's monthly income was low. [8] conducted a study in Bangladesh, their study results also similar with current study. The study participants working experience was average 5 years which was related with previous study conducted in Kerman, Iran [12].

The results of the present study revealed that participant's knowledge level regarding food hygiene was low. A similar study result was found which was conducted by [13] study reported that the level of knowledge regarding food hygiene was also low. Whereas, dissimilar study results also found in Brazil &Turkey, they have reported average knowledge among restaurant food handlers [14]. Moreover, another study conducted in Nigeria & Iran, they have found good level of knowledge among food handlers [15].

The present study found that the participants had a moderate level of food hygiene practice. Hanan et al., (2018) conducted a study in Nigeria revealed that food workers had moderate food hygiene practice. Another study also found opposite result which was conducted by Hemati in Iran, they have found that poor food hygiene practice among restaurant food workers [16]. On the other hand, the present finding is contradictory with the finding reported by Azanaw and Rosnani which indicate that good practice level among food handlers [9,17].

The current study showed that there was a significant positive relationship between knowledge and practice regarding food hygiene. This study results were consistent with a study conducted in Indonesia they found that food workers with good knowledge had a better food hygiene practice [18]. In addition, Ansari-Lari et al., (2010) showed that knowledge was positively related with practice. Indeed, improving food hygiene knowledge level can lead to better practice among food workers and ultimately diminished incidence of foodborne diseases. The present study also showed that practice regarding food hygiene was significantly related with go to hospital when feel sick. A similar study result was found which was conducted by [19] among food handlers in Srilanka. In current study result revealed that practice regarding food hygiene was related with marital status. This study result is similar with previous study conducted by [9,20-23], they have found that practice of food hygiene is significantly related with marital status.

Conclusion

Study result indicates that restaurants food workers had low food hygiene knowledge and fair level of practices. The study results also showed low level of practices in some area such as washing hands, read the expiry date before purchasing and using packaged food and use of apron. It is necessary to improve food hygiene practices among food workers include washing hands, read the expiry date before purchasing & using packaged food, and use of apron. Education and training for safe food hygiene practices in restaurants worker may help prepare safer foods and reduce the possibility of food-borne diseases. The study will be benefitted for health care provider to make intervention program related to food hygiene practice. It is suggested that related authorities need to set some rules and regulation to maintain standard of food hygiene practice and also need continuously monitoring to ensure standard food hygiene practice among food workers. It is essential to health care provider arrange intervention program to increase knowledge level among restaurants workers and monitoring to ensure standard food hygiene practice.

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