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Food Safety Awareness and Practices of Food Handlers in Cafes and Restaurants of Ambo, Guder and Ginchi Towns of West Shoa Zone, Oromia National Regional State, Ethiopia

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Abstract

Good food safety awareness and practices play a great role for handlers in food production, and to guarantee foods served are safe for consumption. Aware or unintended contamination of such food places consumers at risk of suffering from food-borne infections. As a result the study was carried out to document the food safety awareness, food safety practices and attitudes of the manager in food businesses in Ambo, Guder and Ginchi towns of West Shoa of Oromia National Regional State, Ethiopia. The study targeted 120 food handlers and managers in the cafes and restaurants. The study involved an interview, followed by visual observation of the food handlers, equipment, homes and environment of the café and restaurants for confirmation. SPSS version 20 and descriptive statistics such as frequency, percentage, mean and standard deviation were used to analyze the survey data collected from respondents. Majority of respondents were between the ages of 16 - 26years (54.2%) with tertiary or post-secondary education. The study revealed that food safety awareness and attitudes of the managers were satisfactory; however its practice was sensational. The study concluded that the food safety awareness, food safety practices and attitudes of the manager did not result an efficient food safety practices. It is recommended that training of food handlers for the control of environmental and technical sources of contamination is mandatory to secure food safety.

Keywords: Awareness; Practices; Attitudes; Food handlers; Food safety
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1. INTRODUCTION

Food borne illness is a serious and underreported public healthy and financial costs. Internationallly, food borne disease are a major healthy burden leading to high morbidity and mortality. The most common clinical symptoms of food born illnesses are diarrhea, vomiting, abdominal cramps, headache and nausea (Addis and Sisay, 2015). The global burden of infectious diarrhea involves 3-5 billion cases and nearly 1.8 million deaths annually, mainly in young children, caused by contaminated food and water. Especially developing countries are more vurnerable to food borne infection and intoxification.

The population in developing counties is more prone to suffer from food borne illnesses because of multiple reasons, including lack of access to clean water for food preparation; inappropriate transportation and storage of foods; and lack of awareness regarding safe and hygienic food practices (WHO, 2014). Moreover, majority of the developing countries have limited capacity to implement rules and regulations regarding food safety. Also, there is lack of effective surveillance and monotoring systems for food borne illness, inspection systems for food safety and educational programms regarding awaress of food hygiene (WHO, 2014).

Food can get comtamination from plant surfaces, animals, water, sewage, air, soil or from food handlers during handling and proccessing. Among the diverse sources of food contamination, food handlers serve as important source of food contamination either as carriers of npathogens or through poor hygienic practices (Kaferstein, 2003). Several food borne disease outbreaks are associate with poor personal hygiene of people handling foodstaffs. Lack of personal hygiene and environmental sanitation are among the key factors in the transmmission of food borne diseases (Taulo *et al.,* 2009; Zain and Naing, 2002)

With the increase in urbanization, industrialization and tourism, food and drinking establishments are becoming increasingly popular in both industrialized and developing countries. This needs to ensure hygienic food handling and preparation practices in such public food establishments (Abera *et al.,* 2010). Despite of the above fact, there were poor hygienic practices, icrement of street food, inactive food legislation, bioterrorizim, consumer demand, increase subseptabele population, changes in food, increase internation trade, inadequate sanitary facility, improper handling and storage of food and food utensils, poor personal hygiene, improper waste storage and disposal, were the major findings.

In addition, hand wash facility availability, having training on food safety, knowledge on food safety and

availability of potable water were the main factors. In evidence of this, health and hygiene of food worker is major determinant factors for food safety (Abera *et al.,* 2006; Zeru and Kumie, 2007; Andargie *et al.,* 2008; Tessema *et al.,* 2014). As a result the objective of this study were to investigate view of the manager, the extent of food safety awareness and basic food safety practices by food handlers in Cafes and Restaurnts of Guder, Ambo, and Ginchi towns.

2. RESEARCH METHODS

The study was caried out in Guder, Ambo and Ginchi towns of West Shoa zone of Oromia national regional state, Ethiopia. Both primary and secondary data were used to collect data. Primary data were collected from food handlers, cafe managers and restaurant managers using semi-structured questionnaire, observation and interview.Secondary data sources were Hotel and Tourism offices of Guder, Ambo and Ginch towns, different and relevant published reports, bulletins, and websites to generate relevant data on food safety awariness and practices.

Stratified sampling technique was used to determine sample size of the study. Accordingly, Gudar, Ambo and Ginchi towns were purposely selected by considering the potential of cafes and restaurants, the time concern, the cost allocated for the research and availability of data. From the 3 towns, 120 of respondents were selected as sample size using systematic random sampling technique from the total population of 235. The sample size was proportionally determined as follows: from Ambo town 57 among 112, from Ginchi town 28 among 55 and from Gudar town 35 among 68.

Data collected were coded, entered, edited and analyzed by using software of SPSS version 20. Descriptive statistics such as tabulation, frequency, percentage, mean and standard deviation were used to analyze the survey data collected from respondents. Incomplete questionnaires were not considered for data analysis.

3. RESULTS AND DISCUSSION

3.1. Socio-demographic characteristics of food handlers

As indicated in Table 1, among the interviewed food handlers 83 (69.2%) were male while the remaining 37 (30.8%) were female.Most studies report a higher proportion of females (Jevsink*et al.,* 2007). More than half (54.2%) of respondents' was between 16-25 years and there were only 15 respondents whose ages were 36 and above. Respondents with the 1-10 education background were more 60.8 and only four respondents had completed their BSc. Greater number (95) of respondents had no field of study and none of the respondents were trained in the field of food safety and quality management system. Even if the respondents with <1 year of experience were more, the number of years spent in the food business was varied. Respondents were found to have worked in the food business for an average of 2.23 years.

Table 1: Socio-demographic characteristics of respondents

Variables	Response	Frequency	Percent	Mean	Std. Deviation
Gender of Respondents	Female	37	30.8	.69	.464
	Male	83	69.2		
	Total	**120**	**100.0**		
Age of Respondents	<=15	1	.8	2.57	.719
	16-25	65	54.2		
	26-35	39	32.5		
	>=36	15	12.5		
	Total	**120**	**100.0**		
Educational Background of Respondents	Illiterate	1	.8	1.61	.892
	<=Grade 10 Complete	73	60.8		
	Grade 11-12 Complete	22	18.3		
	TVET Complete	20	16.7		
	BSc Complete	4	3.3		
	Total	**120**	**100.0**		
Field Study of Respondents	Construction	9	7.5	6.97	2.207
	Health	3	2.5		
	Veterinary	2	1.7		
	Psychology	4	3.3		
	Surveying	4	3.3		
	Accounting	2	1.7		
	Law	1	.8		
	No Field of Study	95	79.2		
	Total	**120**	**100.0**		

Variables	Response	Frequency	Percent	Mean	Std. Deviation
Marital Status of Respondents	Married	30	25.0	1.76	.449
	Single	89	74.2		
	Divorce	1	.8		
	Total	**120**	**100.0**		
Experience of Respondents	<1Year	48	40.0	2.23	1.267
	1-3Year	34	28.3		
	4-5Year	1	.8		
	>5year	37	30.8		
	Total	**120**	**100.0**		

Source: Computed from survey data (2017)

3.2. Access of training on food safety and practices

Food handlers in the food establishments were asked about their training on food safety and practices as depicted in Table 2. Data response indicated that 102 (85%) of the respondents had no any training of food safety practices, and yet food safety training is very important for food handlers. The study carried out in Jimma town by (Kumera *et al*., 2017) and (Legesse *et al.,* 2017) have been found similar result. Food handlers should receive training before starting work in any food establishment, with a periodic refreshing training (Nuguse and Kumie, 2012).Among the food handlers interviewed only 16 (13.3%) of the respondents had one times training and 3 (2.5%) of the respondents had two times training on food safety.

Generally, about 19 (15.8%) of the food handlers had undergone food safety training. This is similar with findings from Bahirdar (21.8%), and Mekelle (15.7%) by Zeru and Kumie (2007); Lalit *et al*., (2015). The study established that lack of food safety practices by food handler would create risk of food borne pathogen and lack of trust by customers. The research also showed lack of training, and that the respondents had not received a sufficient amount of information with regards to food safety (*Garayoa et al*., 2011).

Table 2: Access of training on food safety and practices

Variables	Response	Frequency	Percent	Mean	Std. Deviation
Is there any training on food safety and practices?	No	102	85.0	.15	.359
	Yes	18	15.0		
	Total	**120**	**100.0**		
Does food safety training helpful for your work?	No	20	16.7	.83	.374
	Yes	100	83.3		
	Total	**120**	**100.0**		
For how many times did you participate on food safety training?	One Times	16	13.3	4.39	1.416
	Two Times	3	2.5		
	No Participation	101	84.2		
	Total	**120**	**100.0**		

Source: Computed from survey data (2017)

3.3. Food safety awareness of food handlers

Assessment of food safety awareness of food handlers in different cafes and restaurants have been carried out as depicted in Table 3. Service year, age and educational level of the respondents can affect food safety awareness of the food handlers. On the other hand, the availability of shower of the respondents substantially influenced their responses to food handling and health problems which is related to owner. Food handlers should always wash their hands when their level of cleanliness may affect food quality; for example: just before food handling, after any interruption, after touching contaminated material, after using the bathroom and whenever else needed. They should not smoke, sneeze, spit, cough, eat, handle money or engage in any act that could contaminate the food during the performance of their activities (Codex, 2003).

Even though respondents were not having perfect knowledge of food born disease, respondents had acceptable awareness of all basic food safety requests. However, problem can be solved through training and education on appropriate food safety prerequisite program and food borne illnesses (Angelillo, *et al.,* 2001; Askarian *et al.,* 2004; Buccheri *et al.,* 2007). Dettenkofer and Spencer (2007) reported hand hygiene being considered more critical in the pathogens control than cleaning and disinfection of surfaces.

Some researchers (Askarian*, et al*., 2004; Gomes-Neves *et al*., 2011) have revealed that most food handlers had poor knowledge of pathogens. The hands of food handlers can be the vector to spread harmful microorganism through cross contamination, and during or after they experience gastrointestinal infection. An employee might

contaminate his/her hands when using toilet, or bacteria might be spread from raw foods, from contaminated equipment's, and environment (Murat *et al.,*2006).Another study result also showed lack of training, and that the respondents had not received a sufficient amount of information (Garayoa *et al*., 2011).

> *"Result from interview showed that the factors that affect food safety awareness are availability of running water, lack of shower, lack of soap/detergent for hand washing, lack of more than one uniform, educational status of the food handler, lack training about food safety and food laws, lack of space for exchange of cloth, lack of hot water in the kitchen, hygiene of garment, lack of separate waste disposal, lack of detergent for toilet washing, inappropriate layout of food establishment, lack of follow up by responsible body and lack of space for waste disposal".*

Table 3: Food safety awareness of food handlers

Statement of Items	Response						Mean	Std. Deviation
	Disagree		Neutral		Agree			
I take off ear rings, watches, jewelry, and etc. before food handling	No	%	No	%	No	%		
	25	33.8	8	10.8	41	55.4	**3.28**	1.531
I always wash my hand by detergent like soap	11	14.9	4	5.4	59	79.7	**4.01**	1.129
I always take shower	35	47.3	3	4.1	36	48.7	**3.14**	1.286
I know the role of detergent	9	12.2	4	5.4	61	82.5	**4.46**	.578
Lack of hand hygiene can transmit food borne diseases	1	1.4	0	0	73	98.6	**4.46**	.578
Contaminated water can transmit diseases	0	0	0	0	74	100	**4.54**	0.502
Contact of cooked and uncooked food can contaminate our food	8	10.9	0	0	66	89.1	**4.18**	1.025
Fit and unfit food can be easily recognized	11	14.9	0	0	63	85.1	**4.05**	0.978
Thorough washing of fruits and vegetables can reduce food borne diseases	9	12.2	2	2.7	63	85.1	**4.15**	1.081
Food handler with different disease can cause risk of food contamination	12	16.3	2	2.7	60	81.1	**4.08**	1.236
Care of head bread and moustache hair can reduce food contamination	16	21.6	5	6.8	53	71.6	**3.73**	1.417
Washing of hand after toil is common	17	23	0	0	57	77	**3.95**	1.413
Hygiene of the toilet plays great role for reduction of food contamination	11	14.9	0	0	63	85.1	**4.08**	1.144
Uniform is common during food preparation and handling	22	29.7	7	9.5	45	60.8	**3.53**	1.397
During coughing and sneezing you always turn away you face from food item and customers	7	9.5	2	2.7	64	87.8	**4.21**	0.897
Lack of personnel hygiene can contaminate the food	5	17.6	0	0	61	82.4	**4.3**	0.975
I always report in case of Diarrhea, Sickness and Vomiting, Skin diseases and serious cold	13	17.6	0	0	61	82.4	**4.08**	1.311
Proper cleaning and sanitation of home, table and chair is very important	5	6.8	0	0	69	93.2	**4.31**	0.89
Hair is a physical hazard	7	9.5	0	0	67	90.5	**4.26**	1.048
Mould is a biological hazard	8	10.9	2	2.7	64	86.4	**4.18**	1.127

Source: Computed from survey data (2017)

3.4. Food safety practices of food handlers

Food handlers in the food establishments were asked about their opinion on food safety practices related issues as displayed in Table 4. Service year, age and educational level of the respondents did not affect some of the food safety practices of the food handlers. As a result, the use of gloves 8 (10.8%), wash hand before wearing the gloves 7 (9.5%), wear complete shoes during work 19 (25.7%), use mask during distributing the food 18 (24.3%) and wash hand by detergent before handling the food if you anoint your body by body oil/lotion 25 (33.8%) of the respondents considerably influenced their responses to food handling and health problems. Similar result has been found by (Kumera *et al.,* 2017). Çakiroglu and Uçar (2008) found contrary results in their study, in which 82.9% of the staff wears caps, masks and gloves during food production.

Food handlers are an important vehicle for microorganisms, and improper handling practices may cause food

contamination and consequently food borne diseases, which pose a potential risk to public health Gudeta (2007). Powell *et al*., (2011) had proposed the concept of a food safety culture to correct and maintain proper practices, in which establishing a strong culture of food safety would be of help, including communication among employees, managers, and employers; encourage employers; consensus on food safety, and similar workplace values.Food handlers should cover hair and wear appropriate protective covering, cut their fingernails short and during handling they should remove jewelry from their hands (Codex, 2003). Hedberg *et al*., (2006) found that 35% of outbreaks were identified due to the bare hand contact with food as a contributing factor.

Table 4: Food safety practices of food handlers

Statements of Item	Response				Mean	Std. Deviation
	No	%	Yes	%		
Use gloves in handling food	66	89.2	8	10.8	**0.11**	0.313
Wash your hand before wearing the gloves	67	90.5	7	9.5	**0.09**	0.295
Wear special cloth before work	27	36.5	47	63.5	**.26**	0.44
Wear complete shoes during work	55	74.3	19	25.7	**0.26**	0.44
Spray perfume in the work place	55	74.3	19	25.7	**0.26**	0.44
Smoking and chewing in the work place	61	82.4	13	17.6	**0.18**	0.383
Dry your hand by dry cloth	11	14.9	63	85.1	**0.85**	0.358
Remove jewelry, ear ring, and watches before the work	28	37.8	46	62.2	**0.62**	0.488
Use masks before distributing the foods	56	75.7	18	24.3	**0.24**	0.432
Short finger nail and no nail polish	20	27	54	73	**0.73**	0.447
No picking of nose and ears	24	32.4	50	67.6	**0.68**	0.471
No coughing and sneezing without turning the face way	5	6.8	69	93.2	**0.93**	0.253
Check shelf life of the food before serving the service	16	21.6	58	78.4	**0.78**	0.414
Providing lift over for the customers	62	83.8	12	16.2	**0.16**	0.371
Providing overnight foods for the customers	60	81.1	14	18.9	**0.19**	0.394
Always washing the cafes equipment by detergent	3	4.1	71	95.9	**0.96**	0.199
Always checking the walls and roofs for insects before food handling	19	25.7	55	74.3	**0.74**	0.44
Always cleaning the tables after service by dry cloth	5	6.8	69	93.2	**0.93**	0.253
Closing the toilet after use is common	18	24.3	56	75.7	**0.76**	0.432
Washing the after toilet by detergent is common	21	28.4	53	71.6	**0.72**	0.454
Transparent in case of risk is common	1	1.4	73	98.6	**0.99**	0.116
Communication for risk is always common	2	2.7	72	97.3	**0.97**	0.163
Managing the risk after occurrence is common	1	1.4	73	98.6	**0.99**	0.116
I do not handle food if I have common cold, diarrhea, influenza, and etc	43	58.1	31	41.9	**0.42**	0.497
Daily changing of the uniform	12	16.2	62	83.8	**0.74**	0.371
I wash my hand by detergent before handling the food if you anoint my body by body oil/lotion	49	66.2	25	33.8	**0.34**	0.476
I wash my hand if I touch my body and close before handling the food	11	14.9	63	85.1	**0.85**	0.358
I always bend/turn away my face from my customer while receiving the order	17	23	57	77	**0.77**	0.424
I always bend/turn away my face from my customer while receiving the order	16	21.6	58	78.4	**0.78**	0.414
I do not breathe the food while providing to my customers	9	12.2	65	87.8	**0.88**	0.329

Source: Computed from survey data (2017)

3.5. Views of manager on food safety practices

Managers in the food establishments were asked about their opinion on food safety related issues as of Table 5. There is little information about laws and regulations concerning food safety in Ethiopia. However, some provisions were given under different regulations issued by the government for ministry of health (MoH), ministry of agriculture (MoA), and ministry of trade (MoT), to address food safety matters in one way or another. This generally shows that there is a lack of appropriate policy framework that guides food safety management in Ethiopia (Dawit, 2010).In this study, due to inappropriate polices framework that guide safety practices and lack of follow up the statement that giving train before let to do work (69.6%) and storage of food according to food laws (65.2%) were undervalued.

Table 5: Views of managers on food safety and practices

Statements of Item	Response				Mean	Std. Deviation
	No	%	Yes	%		
Providing safe food is my responsibility	0	0	46	100	**1**	0
Giving train for the worker is my responsibility	4	8.7	42	91.3	**0.91**	0.285
I strive to satisfy my customers	0	0	46	100	**1**	0
Good personnel hygiene can reduce food contamination	0	0	46	100	**1**	0
Worker with disease will not handle the food	3	6.5	43	93.5	**0.93**	0.25
Expired and lift over will induce health risk	5	10.9	41	89.1	**0.89**	0.315
Environmental sanitation can properly reduce risk of food contamination	0	0	46	100	**1**	0
Improper food handling can further distribute contamination	0	0	46	100	**1**	0
Hand washing plays great role for reducing food contamination	0	0	46	100	**1**	0
You always manage the hygiene of the worker in the work place	6	13	40	87	**0.87**	0.341
You always give train for worker before let them to do work	32	69.6	14	30.4	**0.3**	0.465
Safety of the worker is always in place	7	15.2	39	84.8	**0.85**	0.363
Dusts and air can contaminate our foods	0	0	46	100	**1**	0
Water and equipment can contaminate our foods	0	0	46	100	**1**	0
Food can be contaminated at any point	1	2.2	45	97.8	**0.98**	0.147
Waste disposal is always in place	5	10.9	41	89.1	**0.89**	0.315
Refrigeration equipment's are always maintained and checked	7	15.2	39	84.8	**0.85**	0.363
Cleaning schedule is always in place	23	50	23	50	**0.5**	0.506
Rodents and insect pests can spread the food borne diseases	1	2.2	45	97.8	**0.98**	0.147
Foods are stored according to food laws	30	65.2	16	34.8	**0.35**	0.482

Source: Computed from survey data (2017)

4. CONCLUSION

Depending on the findings the following conclusion is drawn. The study has focused on assessment of food safety awareness and practices of the specified study areas. It was observed that respondents were not fully knowledgeable about food safety awareness and food safety practices which are not the objective of the international codes of practices. It was also found that over half of the respondents of food handlers in the Cafes and Restaurants were males, mostly being young adults with formal education and professionally not qualified. The food safety awareness and the lack of professional qualification indicate that foods from these cafes and restaurants would not be safe and suitable for consumption as well as decrease the reputation and consumer confidence of the restaurants.

5. RECOMMENDATIONS

Training of food handlers for the control of the environmental and technical sources of contamination is necessary to protect the consumer health. Regular evaluation has to be carried out to ensure constant food safety and management practices. Food handlers with qualifications should be employed in Cafes and Restaurants unlike the current situation where ordinary people are just given the job. Adequate means of hygienically washing and drying hands, including wash basins and a supply of hot and cold (or suitably temperature controlled) water and adequate changing facilities for personnel has to be maintained.Prerequisite programmes should outline the measures taken to ensure that premises, equipment, transport, and employees do not contribute to or materialise into food safety hazards.

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