

**Food Safety Practice and Associated Factors among Food Handlers in
Public Food Establishments of Godey Town, Somali Region , Eastern
Ethiopia.**

MPH THESIS

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Food safety practice and associated factors among food handlers in public food establishments of Godey town, Somali Region, Eastern Ethiopia

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DEDICATION

This Thesis work is dedicated to my brother Ebro Mussema. Dear my beloved Ebro! Always your advices and encouragements are with me from my childhood time to now. Ebro, you are good brother and model for me, God bless you, I wish your health and long life!

STATEMENTS OF AUTHER

By my signature below, I declare and confirm that this thesis is my own work. I have followed all ethical principles of research in the preparation, data collection, processing, analysis, and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. This thesis will be submitted for partial fulfillment of the requirement for a degree of Masters from the School of Graduate Studies at Haramaya University.

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ABBREVIATIONS AND ACCRONYMS

| | |
|--------|---|
| AOR | Adjusted Odds Ratio |
| CDC | Centers for Disease Control |
| CI | Confidence Interval |
| COR | Crude Odds Ratio |
| IHRERC | Institutional Health Research Ethics Review committee |
| KAP | Knowledge Attitude Practice |
| NGO | Non Governmental Organization |
| WHO | World Health Organization |

ABSTRACT

Background: Food borne illness is more common in both developed and developing country. In developing countries up to an estimated 70% of cases of diarrheal disease are associated with the Consumption of contaminated foods. Approximately 10 to 20% of food-borne disease outbreaks are due to contamination by the food handler. Nevertheless, data regarding food safety practice and associated factors in low-income countries like Ethiopia are very minimal, including the study area.

Objective: The purpose of this study was to determine the magnitude of food safety practice and associated factors among food Handlers in public food establishments of Godey town, Somali region from February 7 to 17, 2018.

Methods and materials: institutional based cross sectional study design was used, on 390 food handlers working in all 109 public food establishments in Godey town. Data collection was done by four diploma nurse by using structured pretested questionnaire and institutional observation checklist. Data were entered on to Epi Data version 3.0 computer software and exported to SPSS version 20 computer software for analyzes. Accordingly, descriptive statistics was used to describe the independent variables in relation to the outcome variable Bivariable, logistic regression analyses were done to see the association between each independent variable and the outcome variable. All variables with p-value <0.25 during bivariable were entered in to multiple logistic regression models to control for all possible confounders and to identify factors associated with the outcome variable. Odds ratio along with 95%CI were estimated to measure the strength of the association. Finally, level of statistical significant was declared at p-value <0.05 .

Results: the prevalence of satisfactory food safety practice of food handlers was 20.9% [95%CI: 16.7, 24.8]. In multivariable logistic regression analysis having knowledge about food safety [AOR= 10.4, 95%CI: (4.6, 23.81)], presence of hand washing facility for food handlers [AOR=6.5, 95%CI: (2.7, 15,3)] and presence of supervision [AOR=3.08, 95%CI: (1.3,7.12)].were statistically significant factors associated with food safety practice?

Conclusion: The prevalence of satisfactory food safety practice among food handlers was low in this study, knowledge about food safety, hand washing facility, and supervision were factors associated with food safety practice.

Key words: Ethiopia, food handlers, food safety practice, Godey, Somali

1. INTRODUCTION

1.1. Background

Safety is defined as the condition of being safe from undergoing or causing hurt, injury or loss (Webster's, 1990). Food safety was defined by the world health organization as assurance that when food is consumed in usual manner does not cause harm to human health and wellbeing (WHO, 2002).

Food is a fundamental human need and basic necessity to good health, Source of energy, vitamins, and minerals. If the hygienic condition of the food is not kept, it may cause an adverse effect on human health; this may result due to lack of knowledge, wrong attitude and improper practices by food producers or handlers at food catering establishments and consumers. Food safety still remains a major public health challenge and concern globally. Because of this Food borne diseases are known to be responsible for large proportion of illness, deaths and source of diarrheal diseases (Nagga Baraki, 2006).

Food can be subjected to contamination with toxic substances and pathogenic organisms during production, transportation, preparation, storage and service. The consumption of contaminated food that contains sufficient quantities of pathogenic organisms and toxic substances will result in food borne disease. It may due to lack of knowledge in part of food handlers and negligence in safe food handling. It is estimated that in developing countries up to 70% of cases of diarrheal disease may be caused by contaminated food. Food prepared in large quantity is liable to contamination and to the rise of food borne diseases if the strictest principles of hygiene are not maintained (WHO, 2006).

The study conducted by WHO in Geneva by the year 1989 showed that food handling personal play important role in ensuring food safety throughout the chain of food production and storage. Mishandling and disregard of hygienic measure on the part of food handlers may enable pathogenic bacteria to come in to contact with food and in some case survive and multiply in sufficient number to cause illness in consumers (WHO, 1989). Other evidence in University campus by the year 1988 indicated that poor sanitary practice in food distributions,

storage, handling and preparation can create an environment in which bacteria and other infectious agent are more easily transmitted (Gent RN., *et al*, 1999).

Food handler are anyone who works in a food and drink establishments and who handles food, or contact with any equipment or utensils that are likely to be in contact with food, such as cutlery, plates bowls, or chopping boards (Scallan E.*et al*, 2011).

Food borne diseases can be defined as diseases commonly transmitted through food. Food borne diseases comprise a broad group of illnesses caused by microbial pathogens, parasites; chemical contaminants and bio toxins (WHO, 2002). Food borne diseases are major health problems in developed and developing countries. The World Health Organization (WHO) estimated that in developed countries, up to 30% of the populations suffer from food borne diseases each year, whereas in developing countries up to 2 million deaths are estimated per year (Havelaar AH.*et al*, 2015).

1.2. Statement of the problem

Every day people all over the world get sick with the food they eat. This is what we call food born disease and caused by pathogenic microorganism or their toxic product (WHO, 2006). Food-borne related illnesses have increased over the years, and negatively affected the health and economic well-being of many developing countries (WHO, 2008). The World Health Organization (WHO) stated that about 1.8 million persons died from diarrheal diseases in 2005, mainly due to the ingestion of contaminated food and drinking water.

Food poisoning can occurs as a result of consuming food contaminated with microorganisms or their toxins, the contamination arising from inadequate preservation methods, unhygienic handling practices, cross-contamination from food contact surfaces, or from persons harboring the microorganisms in their nares and on the skin (Barrie D., 1996).

According to CDC report, each year as many as 600 million, almost one in ten people in the world ill after consuming contaminated food, of this 420000 people die and from this, 125000 are under five, also CDC estimates that each year roughly 1 in 6 Americans (or 48 million people) gets sick, 128,000 are hospitalized, and 3,000 die of food borne diseases (CDC, 2001).

According to WHO report 2009, say that fifty children under five die every hour in South East Asia due to diarrhea caused by food born disease (WHO, 2009).

Evidence indicates that in developing country illness and death from diseases caused by contaminated food are a constant threat to public health and a significant impediment to socio-economic development worldwide. Food borne disease (FBD) outbreaks are common and often cause considerable morbidity and mortality (Havelaar AH. *et al*, 2015).

Including Ethiopia around 70% of the diarrhea disease is associated with consumption of contaminated food (WHO, 2010). Approximately 10 to 20% of food-borne disease outbreaks are due to contamination by the food handler (Maizun MZ. and Nyi NN., 2002).

Practice of food safety among food handlers is not satisfactory in the world, even though it varies from country to country. For instance the study conducted in Turkey by the year 2004 on the evaluation of food hygiene knowledge, attitudes and practice of food handlers in food business among 764 food handler indicate that mean food safety practice score was only 43.4% + or -16.3. The study demonstrated that food handlers in Turkish food businesses often have lack of knowledge regarding the basic food hygiene (critical temperatures of hot or cold ready-to-eat foods, acceptable refrigerator temperature ranges, and cross-contamination (Azmi Safak Ersun *et al*, 2006).

Other evidence indicate by the year between November 2010 and January 2011 in Switzerland on 100 food handlers in Restaurant showed that mean knowledge score of the participating food handlers was 71%. None of the food handlers knew the correct temperatures for cooking chicken and holding potentially hazardous hot foods, and the range of temperatures for pathogen growth (Palak K.*et al*, 2013). The study conducted in Jamaica by 2014, identified that factors like gender, education, job position, training and experience in the food industry were associated with the practice level of food handlers (Thelwell MR., 2014).

Data regarding food borne diseases in African Region are still minimal (WHO, 2000). However, as per some studies conducted in the region, food safety practice of food handlers is not satisfactory. Study conducted in Nigeria by the year 2013 indicated that 37% of food handlers were directly engaged in cross contamination practices that are potential to cause food borne illness. Education and training on food safety were among the factors responsible for

poor food preparation practice (Mokhtar A.A, 2013). Other evidence showed that lack of accesses to potable water; poor government structural arrangements and incontinent environmental condition were notable reason (Dewaal C. and Robert N. 2005).

In Ethiopia also the practice of food safety is not satisfactory with different factors. An evidence indicate that prevailing poor food handling and sanitation Practices, inadequate food safety laws, weak regulatory systems, lack of financial resources to invest safer equipment, and lack of education for food Handlers are the main contribution factor for food contaminations in public food catering establishments (Mulgeta K and Bahay A, 2012). Recent study conducted in Northern parts of Ethiopia in Gondar Town only 30.3% of food handlers had good food handling practice and socio demographic characteristics , level of knowledge, attitude of food handler were identified factors for food safety practice(Gizaw Z. , *et al*, 2014).

Other study in Dangla Town in northern part of Ethiopia indicate that only 52.5% of food handlers had good food handling practices and presence of insects and rodents were among the factors identified as having significant associations with food safety practice (Tessema G.*et al*, 2014).

The previous studies indicated that the existing food practice in Ethiopia was major risk factor to cause food borne diseases, Even if the responsible body made a great effort likes supportive supervision, inspection and give licenses for the establishments (Melese Temesgen,2015)

Therefore conducting other study in order to strengthen the previous finding in areas where not previously done is very important. In current study area there is no studies conducted on food safety practice and factors that shows the local context, regardless of some influencing factors.

1.3. Significance of the Study

The status of the food safety practice among food handlers in this study area was very low and it was prone to food born disease .So that the finding of this study may minimize these problems Godey Administration Health Bureau as well as cultural and tourism Bureau are stakeholders who can use the findings .it may be used as baseline for planning and intervention purpose for NGO those who are Interested for working food safety program in Godey. In addition, Students and researchers could use it as reference for their work for future.

1.4. Objectives

1.4.1. General objective

- To determine the magnitude of food safety practice and associated factors among food handlers in public food establishments at Godey Town Somali Region

1.4.2. Specific objectives

- To estimate the magnitude of food safety practice among food handlers.
- To identify factors associated with food safety practice among food handlers

2. LITRETURE REVIEW

2.1. Food safety practice among food handlers

The study conducted in Iran by the year 2013 on 141 food handlers about knowledge ,attitude and practice of food safety in restaurant indicated that, majority (92.9%) of the respondents stated that prepared food was safe for customers. Almost all of food workers were aware of the critical role of general sanitary practices in the work place, such as hand washing 85.1% of respondents gave correct answers, using gloves 78.01% of respondents gave correct answers and proper cleaning of the instruments 83.68% of respondents gave correct answers (Abdolmajid Fadaei,2015).

An evidence indicated in Turkey by the year 2004; on the evaluation of food hygiene knowledge, attitudes and practice of food handlers in food business, among 764 food handler, majority of the participant (food handlers) 47.8% had not taken basic food safety training. The mean food safety knowledge score was 43.4 % + or -16.3. The study demonstrated that food handlers in Turkish food businesses often have lack of knowledge regarding the basic food hygiene (critical temperatures of hot or cold ready-to-eat foods, acceptable refrigerator temperature ranges, and cross-contamination (Azmi Safak Ersun, *et al*, 2006).

Study conducted in Saudi Arabia about knowledge, attitude and practice of food handlers by the year 2012 on 200 food handlers in restaurant that 175 (87.5%) of food handlers reported as they always use gloves while touching foods (Mokhtar, 2013).

Other evidence conducted in Jordan by the year 2013 on randomly selected three Military Hospital indicated that, the means of the percentage scores for the knowledge, attitude, practice, were 84.82%, 88.88%, 89.43%,respectively.The overall knowledge, attitude, practice (KAP) mean percentage score was 87.88% and significant difference for the overall (KAP) mean percentage score was also observed between gender and education. Female KAP percentage mean score was 90.0 % and that for males was 86.6%. The college or university

educations employee had a mean score of 91.6 %while the elementary school education employee had a mean score of 79.7 %(Labib Sharif *et al*, 2013).

By the year Between November 2010 and January 2011 the study conducted in Switzerland on 100 food handlers in Restaurant showed that mean knowledge score of the participating food handlers was 71%. None of the food handlers knew the correct temperatures for cooking chicken and holding potentially hazardous hot foods, and the range of temperatures for pathogen growth (Palak K.*et al*, 2013).

Evidence conducted in Jamaica by the year 2014 on 1,109 food handlers about food safety knowledge and practice, showed that only 50% of the food handlers had satisfactory practice towards food safety. In this study, 77% of food handlers reported as always or sometimes thawed frozen foods at room temperature and 19.1% of them reported as they always/sometimes continue working with illness like diarrhea, 71 % never wore jewelry when serving food, 76% used separate utensils for raw and cooked foods, and 75% checked expiry dates of all products (Thelwell, 2014).other study conducted in Bangkok by the year 2011 about KAP of food handlers in restaurants on40 food handlers indicated that only 15.2% of food handlers had satisfactory food safety practice (Cuprasitrit T, *et al*, 2011).

There are studies on food safety practice among food handlers in Africa. For instance, the study conducted in Sudan in 2016 by cross- sectional study design on the level of cooking hygienic practices among 40 food handlers in Restaurant indicate that 33.21% of them were good, 47.57% of them were poor and 27.71%of them were bad based on their score was reported. However, regarding personal hygiene practices, neither training in personal hygiene among the study workers has been noticed nor usage of hand gloves (Abdelrazig A.*et al*, 2017).

Other study conducted in Ghana by the year 2017 by using the cross-sectional study design on Food safety knowledge, attitudes and practices of institutional 235 food-handlers that Almost all of the food-handlers were aware of the critical role of general sanitary practices in the work place, such as hand washing (98.7%) were gave correct answers, using gloves (77.9%), proper cleaning of the instruments/utensils (86.4%) and detergent use (72.8%). On disease transmission, the results indicates that 76.2% of the food- handlers did not know

that *Salmonella* is a food borne pathogens and 70.6% did not know that hepatitis A is a food borne pathogen. However, 81.7% handlers agreed that typhoid fever is transmitted by food and 87.7% agreed that bloody diarrhea is transmitted by food (Akabanda F. *et al*, 2017).

Other study done by the year 2014 in Nigeria on Four categories of food handlers in 45 food establishments indicated that one hundred and fifty (89.3%) of them wash their hands after the use of toilets, whereas only 44 (26.7%) change their hand gloves at work. One hundred and twenty (71.4%) of them undergo regular medical checkup, whereas 53 (31.5%) are isolated from workplace when ill. A few of them, 51 (30.4%) use disinfectants at workplace, whereas 38 (22.6%) check food temperature with thermometer. Also, 103 (61.3%) use ideal waste disposal methods at workplace (Chigozie O. *et al*,2014).In the same country in Nigeria the study conducted in 2013 among 134 food handlers indicate that 49% of food handlers reported that they would allow a sick person by bloody diarrhea to handle food. (Sylvester N.O. and Craig,W.H. 2013).

When we come to Ethiopia there are also different study showed, as the food safety practice of food handlers is not free from risk of causing food borne illness. According to the study conducted in Addis Ababa university cafeterias by the year 2014 on 302 food handlers, by using cross sectional study indicated that nearly half (52.3%) of food handlers had a poor food handling practice and only 47.7% practice good food handling (Asrat M. *et al.*,2015). Cross sectional study conducted in Gondar Ethiopia by the year 2011 on 200 food handlers working in Cafeteria showed that 89.5% of food handlers had a habit of hand washing after toilet and from them, 26% did not use soap for their hand after toilet. However, 10.5% of food handlers had no habit of hand washing at all after visiting toilet (Mulgeta *et al.*2012).

Another study conducted in northern part of Ethiopia in Mekele town by the year 2014 among 369 food handlers by using cross-sectional study design showed that Magnitude of hygienic practices of food handlers almost all 99.5% of the respondents had hand washing habit. Most of the food handlers trimmed their fingernails and not use nail polish with 269 (72.9%) and 219 (59.3%) respectively. Moreover, the food handlers wear their clean gown and did not wear hand jewelries when preparing food were 230 (62.3%) and 280 (75.9% respectively (Lalit *et al*, 2015).

However by year 2007 the study conducted in Ambo Town on Sanitary Survey of Food and Drinking Establishments indicated that among interviewed food handlers only forty (28.6%) of food handlers had worn appropriate outer garment and hair covers, on the other hand sixty-seven (47.9%) of food handlers were not kept their personal hygiene and cleanliness of their overcoat. It was observed that 38(27.1%) of food handlers wore rings/finger ornaments on their finger during food preparations. 17(12.1%) of food handler had nail paint. 42(30%) of food handlers their nail not short trimmed and clean. 8(5.7%) of food handlers responded that they were not washed their hands before starting of food handling practice on the day of interviewing. 2(1.1%) of food handlers were smokers (Dugassa Guteta, 2007).

2.2. Factors associated with food safety practice

2.2.1. Socio demographic factors

According to study conducted by the year 2015 on KAP of 361 street food vendors were in Kuching city, Sarawak indicated that, age and ethnicity appeared to be important factor for food safety knowledge ($p < 0.05$), on the other hand food safety knowledge attitude, training were influence food safety practice ($p < 0.05$). (Mizanur Md. and Rahman Mohd, 2016).

An evidence conducted in Sudan by the year 2017 showed that there is Statistically significant differences were observed by gender and education on food safety practice ($P = 0.000$) (Abdelrazig A. , *et al*, 2017).

Looking Ethiopia there were also different studies which showed the association between socio demographic factors and food safety practice, for instance the study done in Arba Minch town by the year 2015 showed that food hander whose age ≥ 35 years with 3.45, times good practice than the others and the studies also showed that food handlers doing in where supervision held were 13 times had satisfactory food safety practice than those who were doing in where supervision not held . Those who take training on food sanitation in the past were 10 times more practice than those who had not took training (Legesse D., 2017).

Another study conducted in Gondar town by the year 2014, showed that marital status AOR=3.95, with service years of the food handlers AOR = 3.37, and monthly income With

AOR=0.2549, were found to be statistically associated variables with food safety practice (Gizaw Z. *et al*, 2014). Other study conducted at northern part of Ethiopia in Dangle town by the year 2011 also support the finding of Gondar town, Which stated that marital status AOR=7.52, monthly income AOR= 0.4, knowledge about food handling with AOR=1.69. were found to be significantly associated with good food handling Practices (Tessema *et al*, 2014).

2.2.2. Knowledge and attitude toward on food safety

By the year 2010 the study conducted on 64 food handlers working in restaurant in Kuala Lumpur Malaysia showed that there is significant association between knowledge and practice that those who were knowledgeable were more practice than those who have not knowledgeable with AOR=15.43, and attitude with practice with AOR, 9.1 (Ab.Hamid, Rosnani. *et al*, 2012).

Another study conducted in Gondar, Ethiopia by the year 2014 the result of the study revealed that food safety practice is significantly related to the attitude of the workers.

Food handlers who have positive attitude were 7 times more food safety practice than those who had negative attitude (Gizaw Z, 2014). Other evidence conducted in Dangla Town in northern part of Ethiopia by the year 2013 showed that knowledge about food handling AOR=1.69, times good food safety practice than in adequate knowledge (Tessema *et al*, 2014).

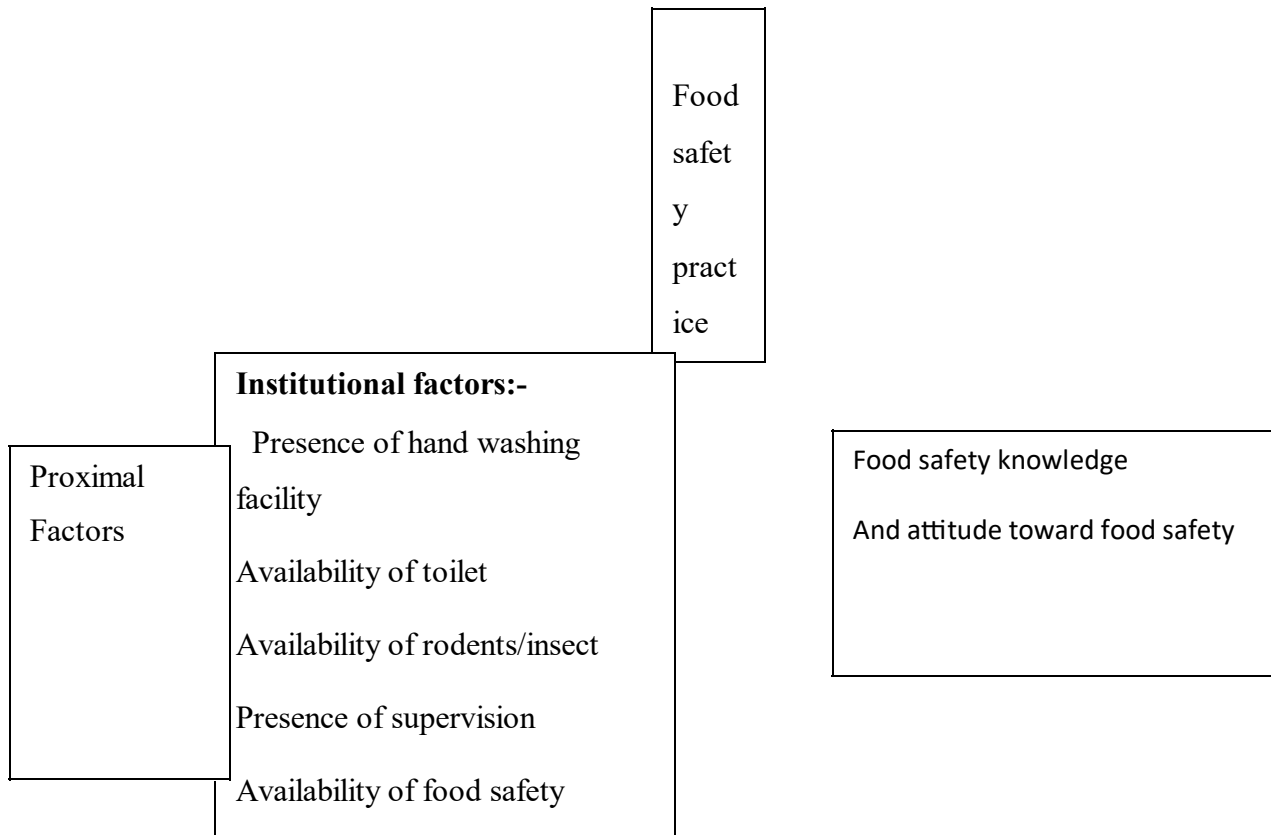
2.2.3. Food establishment/institution/factors

There are different factor caused by food establishments that affect food-handling practice among food handlers. According to study conducted in Malaysia by the year 2013, food handlers reported that they face barriers to carry out food safety behavior especially with unavailability of food handling guideline with the mean of 4.56. In addition, food handlers agreed that lack of supervisor commitment will lead to food poisoning occurrence with mean of 4.23 (Afzan and Mohd, 2013).

According to study done in Dangla town by the year 2014 showed that those who had shower facility with AOR=1.89 time more practice than those who had not shower facility, food handlers who had separate dressing room AOR=1.97 times and presence of rodents or insect AOR =0.348, times good food handling Practice than the others (Tessema *et al*, 2014). Another study conducted in Zeway by the 2002 showed that glass washing facility, latrine facility and water source type are strongly associated with food handling, practice, with

AOR=10.62 ,AOR=23.80, and AOR=1.83 respectively (Abara Kume *et al* , 2002).Another study conducted in Mekele Town by the year 2014 showed that Food handlers had an access to running water inside the kitchen with, AOR=2.89, and have cupboard for storing food utensils with AOR=3.81, were strongly associated with good hygienic practices (Lalit *et al*, 2015).

2.3. Conceptual Framework



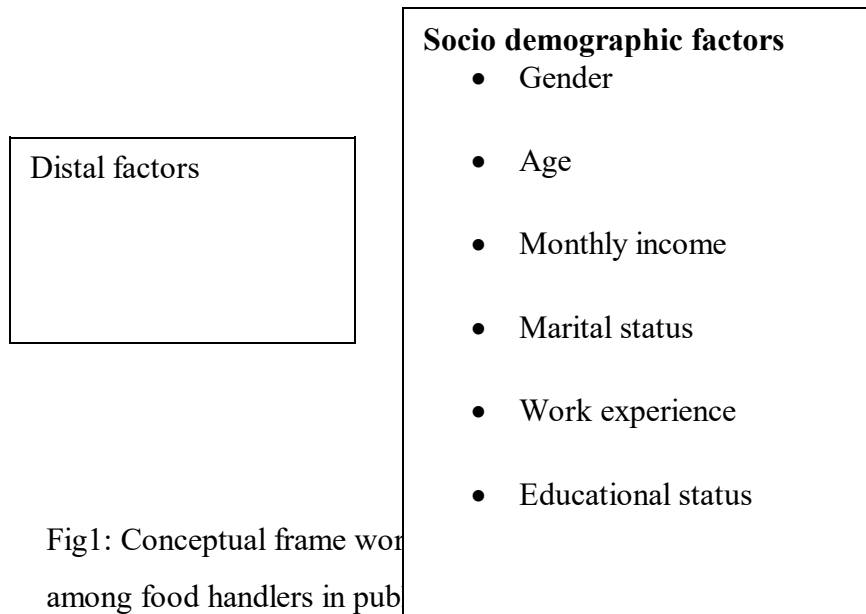


Fig1: Conceptual frame work and associated factors among food handlers in public food establishments in Somali Region 2018.

Source of conceptual frame work: Adapted from different literature by the researchers

3. METHODS AND MATERIALS

3.1. Study area and period

The study was conducted in Godey town, Somali region Eastern Ethiopia. Godey town is found in Shebelle zone. Total population of Godey town is 45000. From this 21276 (47.28%) are males and 23724 (52.72) are females (Godey Town admiration office head). Godey is 1080 Km far from Addis Ababa and 400 km from the capital city of Somali region Jigjigs. There are 109 both licensed and unlicensed public food establishments in Godey Town. According to the cultural and tourism bureau there are 21 restaurants, 21 hotels, 17 cafeterias and 9 kourse bet which are registered and regulated under it. Meanwhile 19 restaurant, 9 cafeterias and 13kurs bet were unlicensed. Around 390 food handlers who were serving in the above both license and unlicensed public food establishments (verbal communication Godey town cultural and truism office head). Regarding to health

facility there are 3 health centers and one referral hospital. Study was conducted from February 7 to 17, 2018.

3.2. Study design

Institutional based cross-sectional study design was used

3.3. Source population

All food handlers who were working in Godey town public food establishments.

3.4. Study population

All food handlers who were working in Godey town public food establishments during study period.

3.5. Inclusion and exclusion criteria

3.5.1. Inclusion criteria

Food handlers who were working in public food establishment during data collection were included from the study.

3.5.2. Exclusion criteria

Food handlers who were unable to respond to interview during data collection were excluded from the study.

3.6. Sample size determination

3.6.1. Sample size determination for specific objective one

The required sample size for the first specific objective was determined using single population formula with the following assumptions. Prevalence of satisfactory food safety practice to be 30.30 % (Gizaw z. et al, 2014). had 95% confidence level, margin of error $d = 5\%$ and 10% non-response rate, the sample size objective one was calculated as follows.

$n = \frac{(z\alpha/2)^2 p(1-p)}{d^2}$ where $z\alpha/2$ at 95% confidence level = 1.96 and $p = 0.303$ as given above

d^2

So that $n=324$ and considering 10% for non-response= 356

3.6.2. Sample size determination for specific objective two

TABLE 1: sample size calculation for different factor associated with food safety practice among food handles in Godey town, 2018

| Variables | Magnitude | | Power CI | AOR | Sample size | Reference |
|-------------|-----------|-------------|----------|------|-------------|----------------------------|
| | Exposed | Non exposed | | | | |
| Training | (36.8%) | (53.6%) | 80%,95% | 1.75 | 138 | Asrat <i>et al.</i> ,2015) |
| Supervision | (13.79% | 52.8% | 80%,95% | 2 | 23 | Legesse <i>et al.</i> 2017 |

So that objective one = $324 + 10\%$ non-response = 356

Objective two =138 and 23

Since objective one (356) was greater than the sample size for objective (Table 1).The final sample size was 356. In Godey town there were 390 food handlers in public food establishments. So the final sample size for this study was all food handlers who were working in public food establishments taken to increase the power of the study.

3.7. Sampling procedure

Since the calculated sample size was 356. A total of 390 food handlers in the public food establishments in Godey town during the study period were included in this study.

3.8. Data collection methods

3.8.1. Data collection instrument

By using structured questioner which were developed from different literatures which were done in Ethiopia by the year 2014 in Arba Minch((Legesse D,2017), another study by the year 2014 in Dangla Town, by the year 2014 in Gondar Town and by the year 2014 in mekele Town northern part of Ethiopia(Tessema et al, 2014, Gizaw Z, 2014 and Lalit et al, 2015) respectively and other study by the year 2007 in ambo town and Zeway Town in Oromia region (Dugassa Guteta 2007 and Abara Kume et al ,2002) respectively. There was minor modification to fit local situation of the study area. The questioners contain socio demographic factor and other variables.

3.8.2. Data collectors

Four diploma nurse as data collector and two environmental health professions along with principal investigator as supervisors were assigned. Those recruited data collector and supervisors were fluent for local language (Somali language) and familiar with local customs Two days training was given for the data collectors and supervisor for the aim content of the questionnaire, how to data collect how to fill the questioner and ethical issue .The collected data was checked every day for its completeness and consistency. Data collection was conducted from February 7 to 17 2018.

3.8.3. Data collection procedure

Data was collected by using structured questioner. The questioner was first prepared in English then translated in to Amharic and local language Somali then again translated to English by other person in order to check its appropriateness. Data was collected by face to face interview. In addition, quantitative observation data was collected on the existing food establishment factors for food safety practice.

3.9. Study variable

3.9.1. Dependent variable

- Food safety Practice

3.9.2. Independent variables

- **Socio Demographic factors:**
 - Gender
 - Age
 - Monthly income
 - Marital status
 - Work experience
 - Educational status
 - Training
- **Knowledge on food safety**
- **Attitude on food safety**
- **Institutional factors like:**
 - Availability of guide line for food handlers
 - Presence hand washing facility
 - Availability of insect or rodent
 - Supervision by responsible body
 - Presence of toilet

3.10. Operational definitions

Food handlers: who works in public food establishments who handle packed or unpacked food, food equipment's and utensils or food contact surface (Scallan H, 2011).

Public food establishments: in this study public food establishment represents Hotels, Restaurants, Cafeterias, Kurs bets and they were both licensed and unlicensed.

Food safety practices: To assess the level of Practices, respondents were asked a total of 12 questions from the questionnaire and scored 0-24, those who score 17 and above 17 were considered as good Practices and those who score 16 and below 16 were considered as poor Practices (Kibret M. and Abera B. 2012).

Knowledge: to assess the level of knowledge respondents were asked a total of 9 questions from the questionnaire about food safety factors (food borne diseases, contamination/cross contamination, and temperature control and scored 0-9 (Thelwell, 2014).

Adequate knowledge: respondent score sum 7 or 77% and above from the total of nine questions were considered Adequate knowledge (Thelwell, 2014).

Inadequate knowledge: respondent's knowledge score sum below 7 or 77% were considered as inadequate knowledge.

Attitude: to assess the level of attitude respondents were asked a total of 5 questions about food safety factors and scored 0-10 (Gizaw et al. 2014)

Positive attitude: if respondents score between 6-10 were considered as positive (Gizaw et al. 2014).

Neutral attitude: if respondents score between 4-5 were considered neutral (Gizaw et al. 2014)

Negative attitude: if respondents score 3 and below 3 from attitudes related question were considered as negative attitude (Gizaw et al. 2014)

3.11. Data quality control

Data quality was assured by using different approach. First the questioner was prepared in English form then translated in local language Somali and Amharic. Two days training was given to data collectors and supervisors on the data collection tool and data collection procedure. The questioner was Pretest on 10 food handlers out of the study area in Danan town to ensure its validity, the time requirement during data collection and to check its consistency. During actual data collection continues supervision and closely monitoring was done by supervisors along with principal investigator on data collectors. Completeness of each questionnaire was done on daily basis.

3.12. Data Processing and Analysis

Data were entered into Epi data version 3.0 computer software and exported to SPSS version 20 computer software for analysis. Descriptive statistics were run to check for any missing values. Summary of descriptive statistics such as frequencies, percentages, means, standard deviation and median were used to describe socio demographic characteristics. Tables and figures were prepared for reporting of frequency of socio demographic characteristics of food handlers, Knowledge on Food Safety Practice of food handlers' attitude on Food Safety Practice of Food handlers. After that the status of food safety knowledge, attitude and practice of food handlers were determined based on their score. To determine the status of knowledge based on 9 knowledge related questions which contained three options, correct, incorrect and I don't know, the appropriate answer was given score one and the remaining given score of zero. The score was ranged (0-9). The respondents who score 7 or 77% and above from total of nine were considered as adequate knowledge, food handlers score 6 and below 6 were considered as inadequate knowledge. Food safety attitude of food handlers was assessed based on attitude related five questions, correct answer was given score of 2, Neutral answer was given one, incorrect answer was given zero. total range became (0-10). After that respondents score range 6-10 were considered as positive attitude, range 4-5 were considered as neutral attitude and range 0-3 were considered as negative attitude. Finally food safety practice was assessed based on 12 food safety practice related questions which contain three options always, sometimes and never. Correct answer was given 2, sometimes was given one and incorrect answer was given zero. Total score was range from (0-24). Food handlers score 17 and above were considered as good. whereas food handlers score 16 and below 16 were considered as poor practice. During bi-variable analysis, crude odds ratio along with 95% CI was used to see the association between each independent variable and the outcome variable by using binary logistic regression model. Independent variables with p-value of ≤ 0.25 were included in multi-variable analysis to control for all possible confounders and identify factors associated with food safety practice. Then outliers and influential cases were checked by standardized residuals and cook's distance respectively. Cases with standardized residuals out of the interval (-3, 3) and cook's distance above 1 were excluded from the multivariable analysis. Multi-co

linearity was also checked to see the linear correlation among the independent variables by using standard error and variance inflation factor. Variables with standard error of >2 and variance inflation factor >5 were dropped from the multivariable analysis. Hosmer Lemeshow goodness of fit tests was used to check for model fitness by looking cut of point > 0.05 . The continuous variables such as food handlers' age was tested using the normal curve with a histogram. Adjusted odd ratios along with 95% confidence interval was estimated to measure the strength of association between dependent and independent variable. In this study level of statistical significance was declared at $p\text{-value} < 0.05$.

3.13. Ethical considerations

The study protocol was approved by Haramaya University College of health and medical science intuitional health research and ethics review committee (IHRERC) of Harar campus. Official letter of cooperation was written from Haramaya University College of health and medical science to all concerned bodies of Godey town and Somali regional health bureau. The study participants were clearly and in detail informed about the purpose of study, the potential risk of the study which was only took a few minutes for their work time. Benefit of the study was explained for the study participants there was also informed as there is no direct benefits for study participants and their institutions but the information is very important to solve this problem. It was explained that the participation was voluntary. The confidential and private information was kept. The written informed voluntary and signed consent was obtained from the manager of the food establishment and each study participants. In order to protect the confidentiality of the information the name of participant was not included in the questionnaires. The identification was only coded by numerical numbers.

3.14. Dissemination of the results

The result of the study will be communicated to the Haramaya university college of health and medical science, Godey town health office and Godey town cultural and tourism office and also to the different partners those who are working in food safety program in Godey town and Somali region. For the publication purpose, the abstract of the study will be submitted to national or international peer reviewed publishers.

4. RESULTS

4.1 socio demographic characteristics

A total of 390 food handlers in all (109) public food establishments were responded to the Questionnaire yielding 98.2% response rate. Out of the total (n=383) interviewee majority 140(36.6%) of study participants were from restaurants. About gender,(n=383), 209(54.6%)were males and 174(45.4%) were females. The mean age of the respondents was 25.4 ± 8 years. About their educational status majority of them 297,(77.5%) have no formal education. In the case of Ethnicity 276(72.1%) of the participants were Somali in their ethnicity. Looking marital status, around 282 (73.6%) of participants were singles. In case of food safety training, 297 (77.6%) of food handlers were not attend food safety training.(Table 2, N=383)

Table 2: Socio - demographic characteristics of food handlers working in public food establishments of Godey town, March, 2018(n=383)

| Socio demographic characteristics | Frequency | Percent (%) |
|---|-----------|-------------|
| Number of food handlers per food establishments | | |
| Hotels | 81 | 21.1 |
| Restaurants | 140 | 36.6 |
| Cafeteria | 91 | 23.8 |
| Kurs bet | 71 | 18.5 |
| Sex of respondents | | |
| Male | 209 | 54.6 |
| Female | 174 | 45.4 |
| Age of respondents | | |
| 15-25year | 287 | 74.9 |
| 26-36year | 40 | 10.5 |
| ≥ 37 year | 56 | 14.6 |
| Ethnicity | | |
| Somali | 276 | 72.1 |

| | | |
|-------|----|------|
| Tigre | 51 | 13.3 |
|-------|----|------|

Table 2 continued

Current Marital status of respondents

| | | |
|--------|-----|------|
| Single | 282 | 73.6 |
|--------|-----|------|

| | | |
|---------|----|-----|
| Divorce | 18 | 4.7 |
|---------|----|-----|

| | | |
|---------|----|-----|
| Widowed | 21 | 5.5 |
|---------|----|-----|

Educational status

| | | |
|---------------------|-----|------|
| No formal education | 297 | 77.5 |
|---------------------|-----|------|

| | | |
|-------------------|----|------|
| Primary education | 56 | 14.6 |
|-------------------|----|------|

| | | |
|---------------------|----|-----|
| Secondary education | 25 | 6.5 |
|---------------------|----|-----|

| | | |
|-------------------|---|-----|
| College and above | 5 | 1.3 |
|-------------------|---|-----|

Work experience

| | | |
|--------|-----|------|
| <1year | 153 | 39.9 |
|--------|-----|------|

| | | |
|----------|-----|------|
| 1-3 year | 162 | 42.3 |
|----------|-----|------|

| | | |
|--------|----|------|
| >3year | 68 | 17.8 |
|--------|----|------|

Monthly income of the respondents

| | | |
|----------------------|----|------|
| ≤1000 Ethiopian birr | 59 | 15.4 |
|----------------------|----|------|

| | | |
|--------------------------|-----|------|
| 1001_2000 Ethiopian birr | 232 | 60.6 |
|--------------------------|-----|------|

| | | |
|----------------------|----|----|
| ≥2001 Ethiopian birr | 92 | 24 |
|----------------------|----|----|

Food safety training

| | | |
|-----|----|------|
| Yes | 86 | 22.4 |
|-----|----|------|

| | | |
|----|-----|------|
| No | 297 | 77.6 |
|----|-----|------|

4.2. Knowledge of food handlers about food safety

Food safety knowledge of food handlers was assessed based on 9 food safety knowledge questions. Each question has three options (correct, incorrect and don't know). The appropriate answer for question number 6 and number 8 from the given option was incorrect, the remaining 7 questions, was option correct. Based on the result of knowledge assessments, from the total (n=383) food handlers, 94(24.5%) food handlers had adequate knowledge and 289(75.5%) had inadequate knowledge. Mean score value of food safety knowledge of the respondents was 4.54. (Table 3)

Table 3. knowledge about food safety practice of food handlers in Godey town public food establishments 2018 (n=383)

| Variables | Number of respondents | | |
|---|-----------------------|-------------------|--------------------|
| | Correct N(%) | Incorrect N(%) | don't know N(%) |
| Food with enough pathogens to make you sick may look smell or test good | 193(50.4) | 155(40.5) | 35(9.1) |
| Really fresh food can cause food Poisoning if it is not properly handled. | 196(51.2) | 125(32.6) | 62(16.2) |
| Fresh meat always has microbes on the surface. | 194(50.7) | 127(33.2) | 62(16.2) |
| Canned foods may have harmful microbes. | 210(54.8) | 109(28..5) | 64(16.7) |
| Lettuce and other raw vegetables might have harmful microbes. | 219(57.2) | 159(41.5) | 5(1.3) |
| Foods can be contaminated with microbes by coming in contact with unsafe foods | 204(53.3) | 128(33.4) | 51(13.3) |
| Ready to eat foods (e.g. vegetables) can be Prepared on the same cutting board that was | 193 (50.4) | 137(35.8) | 53 (13.8) |

used to prepare meat

Cutting boards, meat slicers and knives should

disinfect after each use.

199(52)

132(34.5)

52(13.6)

Refrigeration kills all the bacteria that might

cause food-borne illness.

180(47)

173(45.2)

30(7.8)

4.3 Attitude of food handlers towards food safety practice

Attitude on food safety practice of food handlers was assessed based on 5 attitude questions.

From the total (383) study participants only 53(13.2%) of food handlers had positive attitude

(Figure 2)

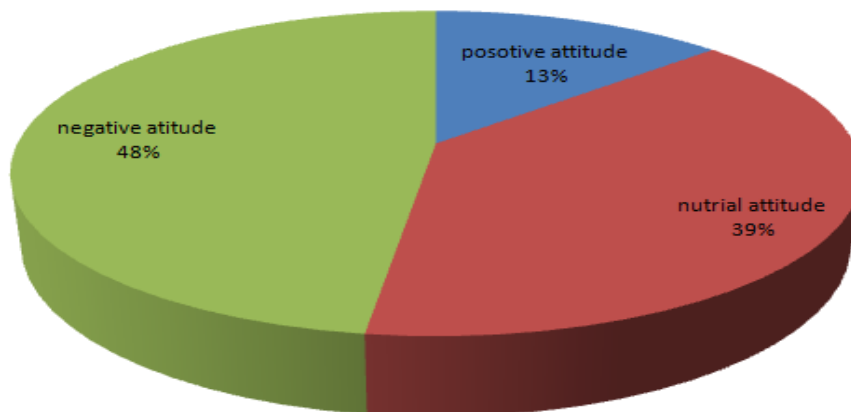


Figure2: The overall status of attitude of food handlers about food safety practice in public food establishments of Godey Town , 2018

Table 4: Attitude on food safety practice of food handlers in Godey Town Eastern Ethiopia, 2018(N=383)

Variables

Number of respondents

| | Agree N(%) | Disagree N(%) | Neutral N(%) |
|--|---------------|------------------|-----------------|
| Temperature controls are an effective method of reducing the number of cases of food poisoning | 60(15.7) | 142(37.1) | 181(47.3) |
| All food handlers should have a food safety training qualification. | 46(11.2) | 181(48) | 156(40.7) |
| Lack of food safety training affects safe food Handling. | 62(16.2) | 151(39.4) | 170(44.4) |
| Unavailability of food handling guideline can affect food safety | 39(10.2) | 198(51.7) | 146(38.1) |
| Lack of supervisor commitment affects safe food handling. | 48(12.5) | 200(52.5) | 135(35) |

4.4. Food safety practice among food handlers

Current study indicated that only 80(20.9%) of the study participants had satisfactory food safety practice whereas 303(79.1) of the study participants had not satisfactory food safety practice. However majority of the participants 225(58.7%) reported that always wash their hands before starting their work and 114(29.8%) of them do it sometimes.

The study also showed that only few of the participants 38(9.9%) they didn't use separate utensil when they are preparing raw and cooked foods. To ward checking expire date of product, only 33(8.6%) they never checked the expire date of the products.

About smoking status,103 (26.9%) of participant reported that always smoke cigarette and 132(46.8%) of them smoke cigarette during normal work. From the total participant majority of them 300(78.3%) said that came to work when they have diarrhea. Furthermore 150(39.2%) participants reported that they always cover head during food serving and 210(54.8%) of the participants do it sometimes

Beside majority 290(75.7%) participants reported that they have habit of making their nail long and 93(24.3) of participants never do it. In addition from the total only few of them 35(9.1%) were reported that never disinfect cutting boards after each use (Table 5).

Table 5: Self-Reported Food Safety Practice of Food handlers in Godey town eastern Ethiopia 2018(N=383).

| Variables | Number of respondents | | |
|--|-----------------------|-----------|-----------|
| | Always | Sometimes | Never |
| | N (%) | N (%) | N (%) |
| Do you wash your hands before starting your Work? | 225(58.7) | 114(29.8) | 44(11.5) |
| Do you wash your hands before touching cooked foods? | 156 (40.7) | 195(50.9) | 32(8.4) |
| Do you use separate utensils when preparing raw and cooked food? | 176(46) | 169(44.1) | 38(9.9) |
| Do you check the expiry dates of all products? | 167(43.6) | 183(47.8) | 33(8.6) |
| Do you wear uniform when serving food? | 166(43.3) | 181(47.3) | 36(9.4) |
| Do you smoke cigarettes? | 103(26.9) | 179(46.7) | 101(26.4) |
| If you smoke, do you smoke during your normal work? | 132(46.8) | 137(48.6) | 13(4.6) |
| Do you wear a hat or head covering When Serving Food? | 150(39.2) | 210(54.8) | 23(6) |
| Do you wear jewelry when serving food? | 79(20.6) | 119(31.1) | 185(48.3) |
| Do you disinfect cutting boards after each use? | 142(37.1) | 206(53.8) | 35(9.1) |
| Do make your nail long? | 93(24.3) | 197(51.4) | |

4.5 Observation of Institutional facilities

Observation was conducted on 107 public food establishments 21 hotel, 39 restaurants, 26 cafeterias and 21 kurs bet. Two establishments were involuntary for participation (one from cafeteria, the other from kurs bet). Almost all 97(90.6%) had no food safety guideline. More than half 84 (78.5%) institution had no hand washing facility for food handlers (table 6).

Table 6 Observed Institutional Facilities in Food Establishments of Godey town 2018 (n=107).

| Check list | Number of Institutional Facilities | |
|---|------------------------------------|-----------|
| | Yes N (%) | No N (%) |
| Availability of guideline for food Establishments | 10(9.3%) | 97(90.7%) |
| Presence of Hand washing facility. | 23(21.5%) | 84(78.5%) |
| Availability of latrine. | 56(52.3%) | 51(47.6%) |
| Availability of Insects/rodents | 60(56%) | 47(44%) |
| Supervision held | 19(17.8%) | 88(82.2%) |

4.6 Factors Associated with food Safety Practice

Identifying associated factors of food safety practice was done using logistic regression model. After conducting univariable analysis to check data completeness and missing value of the data. Results of bivariable logistic regression analysis showed that factors like age group of 26-36 year with [COR=12.333,95%CI:6.391,23.80], primary education with [COR=0.11,95%CI:(0.06-0.21)], secondary education with (COR =.086,95%CI:(0.036-0.2)], presence of food safety training with [(COR=12.36,95%CI:(6.98-21.878)], having food safety knowledge with [(COR=15.71,95%CI:(9.05-29.25)], , availability of Food safety guideline with (COR=9.6,95%CI: (2.34-37.8)], availability of Hand washing facility with (COR=7.6,95%CI:(4.4-13.2) and supervision held with [(COR= 14.2, 95CI:(7.18-25.5)], were statistically significant factors associated with food safety practice. In the multivariable logistic regression analysis having food safety knowledge, presence of hand washing facility for food handlers and presence of supervision were statistically significant factors food safety practice (table 7(n=383)). **Table7: factors associated with Food Safety Practice among Food Handlers in Godey town Somali Region Eastern Ethiopia, 2018.**

| Variables | | Food safety Practice | | COR | AOR |
|-----------|--------|----------------------|---------------|--------------------|-------|
| | | Good Practice | Poor practice | 95% CI | 95%CI |
| Sex | Male | 43(20.6) | 166(79.4) | 0.959 (.585-1.572) | |
| | Female | 37(21.3) | 137(78.7) | 1 | |
| Age | 15-25 | 28(9.8) | 259(90.2) | 1 | |

| | | | | | |
|----------------------------------|----------------------|-------------------|-----------|--------------------|------------------|
| | 26-36 | 20(50) | 20(50) | 12.33(6.39-23.80)* | |
| | ≥37 | 32(57) | 24(43) | 1.333 (.590-3.012) | |
| Current marital status | Single | 61(21.6) | 221(78.4) | 1 | |
| | Married | 13(21) | 49(79) | 1.04(0.53-2.04) | |
| | Divorced | 2 (11.2) | 16(88.8) | 2.2(0.5-9.87) | |
| | Widow | 4(19) | 17(81) | 1.17(0.38-3.62) | |
| Educational Status | No formal Education | 34(10.4) | 263(88.6) | | |
| | Primary education | 30(53.6) | 26(46.4) | 0.11(.06-0.21)* | |
| | Secondary Education | 15(53.6) | 10(46.4) | .086 (0.036-0.2)* | |
| | College and+ | College and+ <1yr | 1(20) | 4(80) | 0.5(0.05-4.46) |
| Work experience | | | 123(80.4) | 1 | |
| | | 30(19.6) | | | |
| | 1-3 year | 30(22.8) | 132(77.2) | 1.07(0.6-1.88) | 1.1(.454,2.60) |
| | >3 year | 20(20) | 48(80) | 0.585(0.3-1.13) | .98(.35-2.78) |
| Monthly income In Ethiopian birr | ≤1000 | 11(18.6) | 48(81.4) | 0.85(0.36-2.00) | |
| | 1001-2000 | 54(23.3) | 178(76.7) | 0.64(0.34-1.2) | |
| | >2000 | 15(16.3) | 77(83.7) | | 1 |
| | Food safety Training | Yes | 50(59.8) | 36(40.2) | 12.36(7.0-21.9)* |
| Food safety Knowledge | No | 30(8.6) | 267(91.4) | | 1 |
| | Adequate | 56(59.8) | 38(40.2) | 15.7(9.05-29.3)* | 10.4(4.6-23.8)* |
| Attitude towards | In adequate | 24(8.6) | 256(91.4) | | 1 |
| | Unfavorable | 33(18) | 150(82) | .974 (.43 -2.19) | |

| | | | | | |
|------------------|-----------|-----------|------------|------------------|----------------|
| Food safety | Neutral | 38(25.5) | 111(74.5) | .623(0.279-1.4) | |
| | Favorable | 9(17.6) | 42(82.4) | | 1 |
| Food safety | Yes | 7(70) | 3(30) | 9.6(2.34-37.8)* | |
| Guideline | No | 73(19.6) | 300(80.4) | | 1 |
| Availability of | Yes | 41(20.3) | 150(79.7) | 1.1(.791-1.75 | |
| latrine | No | 39(21.5) | 153(78.5) | | 1 |
| Availability of | Yes | 44(23) | 147(76.6) | 1.3(0.47-2.127) | |
| insect | No | 36(18.75) | 156(81.25) | | 1 |
| Supervision held | Yes | 48(62.33) | 29(37.67) | 14.2(7.18-25.5)* | 3 (1.30-.11)* |
| | No | 32(9.7) | 274(90.3) | | 1 |
| Hand washing | Yes | 44(51.2) | 42(49.8) | 7.6(4.4-13.2)* | 6.5(2.7-15,3)* |
| facility | No | 36(12.37) | 261(87.8) | | 1 |

5. DISCUSSION

.Looking the status of current study finding, the prevalence of good practice was only 20.9% this figure is markedly lower than the study conducted in Jordan (89.43%)(Labib Sharif *et al*, 2013), Jamaica (50%) (Thelwell, 2014).This difference may be due to variation of socio demographic characteristics, regulatory system of food establishments and accesses difference in facility. However this study finding (20.9) was higher than the study conducted in Bangkok (15.2%) (Cuprasitru.T *et al*, 2011). This may due to difference in socio demographic characteristics and the number of sample size variation.

Finding of this study (good practice (20.9%) also not consistent with study conducted in Sudan (33.21%). (Abdelrazig A, *et al*, 2017). This difference may be due to study setting

because; the study conducted in Sudan was by sample size of 40 food handlers and conducted in restaurants only.

Current study also showed that the prevalence of good practice was lower than study conducted in Addis Ababa university cafeterias by the year 2014 on 302 food handlers (52.3%), and the study conducted in Arba Minch 32.6%. This difference may be due to variation of geographical area and regulatory system.

About knowledge on food safety practice, food handlers those who had good food safety knowledge on food safety practice were 10.4 times more good practice than those who had no adequate knowledge. Knowledge also as identified factor with the study conducted in, Kuching city.(Mizanur Rahman *et al* ,2016).This possible explanation may be presence of knowledge about food safety enable/support food handlers to have satisfactory food safety practice.

While looking the other givens variables for the current study, presence of hand washing facility for food handlers also one of the identified factor, means that ,those who had hand washing facility in their kitchen area were 6.5 times more good practice than those who had not hand washing facility and when looking the other literatures this factor also as identified factors .for instance the study conducted in mekele town (lalit I. et al 2015) ,this possible reason may be that presences of hand washing facility may help the food handles to keep their personal hygiene like hand washing and to clean their utensil as time they wants,

Current study also identify that lack of supervision as gap for good safety practice, mean that those food handlers who were doing in facility where supervision held were 3 times had good safety practice than those who were doing in where there is not supervision held. This finding is supported with study conducted Cassino, Italy (Elisa Langiano *et al*,2011) and in Arba Minch (Legesse D *et al*) . Really the presence of supportive supervision improve the food handlers, food handling practice by giving practical support and feedback on food handling.

Strength and Limitation of this study:

Strength: Since the study is conducted on all type of public food establishments and on all food handlers this may one strength of this study

Limitation: since this study is not supported by observation on food handlers this may be one limitation of this study

6. CONCLUSION AND RECCOMENDATIONS

6.1 .Conclusion

The magnitude of satisfactory food safety practice is low in this study. Variables like knowledge about food safety practice, hand washing facility for food handlers and presence of supervision from warada health office were identified as factors significantly associated with food safety practice.

6.2 Recommendations

- Godey Zonal as well as Godey warada Health bureau together with cultural and truism bureau better to make strong supportive supervision for food establishments
- It is better to Godey warada environmental health professions give awareness on food safety practice and food safety knowledge,
- Godey warada health office in collaboration with Water office It is better to inform and support to public food establishments to maintaining and establishing hand washing facility in kitchen area to improve the overall sanitation of food establishment

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8. APPENDICES

Introduction: My name is ----- . I am as data collector for the study being conducted in this community by Mohammed Mussama .who is studying is for his master program in Haramaya University in public health. I kindly request you to lend me to your attention for the short period of the time.

1 Study Title: Food Safety Practice and Associated Factors among Food Handlers in Public Food Establishments of Godey Town, Somali Region Eastern Ethiopia.

2 Purpose: the main purpose of this study is to write a thesis as the partial fulfillment of master's degree in public health. The result may be help full for the Godey town cultural and tourism office ,Godey town administrative health office and other NGO those who are interested to do working for food safety program in this town and Somali region.

3. Procedure and duration: the time taking for this questioner will be 10 minute.

so interviewing you I filled these questioners

4. Risk and Benefit: the risk of being participated by this study is very minimal, only taking a few minutes.The information that you provide is very important to solve this problem on this issue but there is no direct benefits for you and your institution.

5. Confidentiality: the information that you give me will be confidential and the finding of the study will be reflect the whole population. Not reflect the individual person. The questioners will be coded to exclude showing names.

6. Rights: participation in this study is fully voluntary if you are not interested you have the right to not to participate even you have the right to discontinues at any time if you are discomfort during interview.

7. Address: if you have any question about the study you can ask by the following address

Contact Address: Name of principal investigator: Mohammed Mussema

Address: Godey Town

Phone number 0911284733

Email: mohammedgoto1@gmail.com

Haramaya University College of Health Sciences Institutional Health Research Ethics Review Committee,

Tel.02546662011P.O.Box 235

Fax 0256668081, Harar, Ethiopia

8. Declaration of informed voluntary consent

I have read or was read to me this consent form or participant information. I have clearly understood, the purpose of the research the procedure .the risk, the benefit and the issue of Confidentiality. I was informed that I have the right to withdraws from the study at any time therefore declare my voluntary consent to participate in this study with my signature

Participant name ----- signature -----date----/-----/2018

Manager name -----signature-----date----/-----2018

Interviewers name -----signature-----date-----/-----/2018

Annex 2 ተጨማሪ መጫ

ከምግ እና ምግብ መገልጽ ቁሳቁሶች ጋር ቀጥተኛ ንክኪ ያላቸው የምግብ ቤት ሠራተኞች መረጃ መስጫ እናየተሳታፊዎችፍቃደኝነትመጠየቂያቅፅ.

የእኔ ስም-----ይባላል:: የምሰራው መረጃ መሰብሰብ ሲሆን በጎዴ ከተማ በሚገኙ ምግብ ተቋማት ላይ በሚደረገው ጥናት በሀረማያ ዩኒቨርሲቲ በጤና ና ህክምና ሳይንስኮሌጅየማስተርስዲግሪውንበሚየጠነውመሀመድ ሙ ለሚሰራው ከምግብ ና ምግብ ነክ መገልገያ ቁሳቁሶች ጋር ቀጥተኛ ንክኪ ያላቸው የምግብ ቤት ሰራተኞች ላይ የሚደረገውን ጥናት መረጃ ሰብሰቢ ነኝ::አሁን ስለ ጥናት የምገልፀው ስላለኝ በጥሞና እንዲያዳምጡኝ እጠይቃለሁ::

1.የጥናቱ ርዕስ:-

ስም/ማንነት በማይገልፅ ሁኔታ መለያ ይኖረዋል። በማንኛውም የፀ-ሁ-ፍ ወይም ቃል ሪፖርት በሚቀርብበት ጊዜ የእርሶን ማንነት በጥናቱ ውስጥ በማያሳይ መልኩ ይዘጋጃል።

6. መብቶች:

በጥናቱ ላይ መሳተፍ በፍቃደኝነት ላይ የተመሰረተ ነው። ስለዚህ በዚህ ጥናት ላይ የመሳተፍ ወይም የለመሳተፍ መብት አለዎት። በዚህ ጥናት ላይ ለመሳተፍ ከወሰኑ ቃለ ምልልሱ ከተጀመረ በኋላ በማንኛውም ሰዓት ያልተመቸት ሁኔታ ሲኖር ማቋረጥ ይችላሉ። ይህን በማድረግ ዎ ምንም የሚደርስብዎት ችግር የለም። መመለስ የማይፈልጉት ጥያቄ ሲኖር በማንኛውም ሰዓት ያለመመለስ ይችላሉ።

7. አድራሻ : ስለ ጥናቱ ያለዎትን ማንኛውም ጥያቄ በሚከተለው አድራሻ መጠየቅ ይችላሉ።

የጥናቱ ባለቤት : መሀመድ ሙሰ

ስልክ ቁጥር: **0911284733**

አድራሻ: ጎዴከተማ

ኢ-ሜይል: mohammedgoto1@gmail.com

የተቋማት የጤና ምርምርና ስነ-ምግባር ገምጋሚ ኮሚቴ አድራሻ: ስልክ **0254662011**

የሙ.ሣ.ቁ. 235 ሀረር

8 ፍቃደኝነትን ስለ ማረጋገጥ:

ከላይ የተዘረዘሩትን የመረጃ ቅጾች በሚገባ አንቢባለሁ ወይም ተነቦልኛል። በዚህም መሰረት የጥናቱ ዓላማ እና አካሄድ የሚያመጣው ጥቅም ና ጉዳት፤ ሚስጥራዊነቱን፤ በጥናቱ የመሳተፍ ወይም የለመሳተፍ መብት እንዳለኝ፤ በቃለ መጠይቁ ወቅት ያልተመቸኝ ነገሮች ሲኖሩ አቋርጬ መውጣት እንደምችል እና ያልተመቸኝ ጥያቄዎች ሲኖሩ ያለመመለስ መብት እንዳለኝ በሚገባ ተረድቻለሁ። በተጨማሪም በቃለ መጠይቁ ወቅት ግልፅ ያልሆኑልኝ ጥያቄዎች ሲኖሩኝ እንድጠይቅ እና ተጨማሪ ጥያቄዎች ሲኖሩኝ እንዲመለስልኝ አድራሻ ተሰቶኛል። ስለዚህ በዚህ ጥናት ለመሳተፍ ሙሉ ፍቃደኝነትን በፈረማዬ አረጋግጣለሁ።

የተሳተፈው ስም ----- ፊርማ -----

የስረስገጃ ስም ----- ፍርማ -----

የመረጃው ስብሰባ ቢስምና ፊርማ ----- ፍርማ -----

Annex 3 **Caddaymaha DHeeriigaah**

Foomka Wa ydiimada Xoogaal Bixiinta Cuntada iyo Shaqaalaha Laxi dhiidha Qalabka Adeega Cuntada iyo Ka qaybgeleyaasha Raaliga ah.

Maga Caygu waa _____ Waxaan Kuhawlanahay Xoggal Uruurinta Xaruumaha Cuntada ee Looxushay In Daraasad Lagusameeyo ee Laxi dhiidha Mihired Geetajaw oo Kadi yaarinaysa Shahadada Digriiga Maastarsiiga Kuuliyada Caafmaadka iyo Saynsiga DHakhtarnimada ee Jaamicada Haramaaya taas oo Kusalaysan Cuntada Iyo Wixilamicada Haramaaya taas oo kusalaysan Cuntada Iyo Wixi lamidah Iyo Qalabka Adeega Cunto Iyo Shaqaalaha Laxi dhiidha, maadama aan alay Xoogaal uruuriyo oo aan Rabo Waxooga Wacyigelin inaan Kasiiyo Kaqaybgela yaasha Qaabka Daraasaadka Iyo Xulshada laaw sihaboon Lidhageystaan ayaan Codsanaya

1Cinwaanka Daraasadka

Waa Mid Laxidhiidha Arrimaha Waxqaabadka Hirgalka Daryeelka Cuntada ee Xaruumaha Cuntada Kahawlgala Iyo shaqaalaha iyo Qalabka Adeegsiga ee 2018 Lagaxushay Godey

2UJeeda Muhimkaah ee Daraasaadka

Natijada Kasoobaxda Daraasaadkan Waxaay no qondoonta Midkaalin Doorwayn Kufadhiida Xaluu abuurida DHibaatooyanka Laxidhiidha Daryeelka Cuntada iyo Arrimaha laxidhiidha ee yoolka Xafiiska Caafmaadka ee Ismaamulka Dirdhabee iyo Xafiiska DHAqanka iyo Dalxiiska ee Dirdhabee. Sidokate Darasadeeda Waxaay Unoqonaysa Mid Udhamaystiraysa Hanashada Digriiga Maastarka

3Qaabsocodka iyo Heekamuudo

Shaxda Waydiimaddan ooaan Istic maalayo ayaan Kuluaydiinaya Su'aalo Kaladuwan. Jawaabaha aad Isiinaysiid Waamid Muhim Wah Daraasadkan.SHaxankan Waydiimon Waxa UU Xambaarsanyahay 54 Su'aalood.MuddadaayQaadanyso Waa 30 Midhiidh.Sidaas Darteed Waxaan KacodsanayaInaadSilamahuraan ah Igajawaabtiid, Adiga oo Sharafleh.

4. Waxtakka iyo Waxyeelada Kaqaybgalka Daraasadka

Waxyeelada Kaqaybgalka Daraasadkan Waa xoogataas oo ah Saacadah Shaqadaada Muddada Yare e Midhiidha UU kaqaadanayo. Kaqayb qaada S'hada Daraasadkan Matah Wax tods ah oo

Guuno bixiin ah.Hasaahaate Natijada Daraasadkan lagahelayo waxaay yeelaneysa Mid Si Heerkaalin Wayn ah ay uu Isticmaalikaran kltabiiradu Qoushaha DHi haafmaadka iyo Datxiiska

5. Sirtlisa

Jawaabaha aad Daraasadhkan igasii naysiid xaalad kaste waa mid noqo naysasir.Sido kalenaaan caddaynayn ayn cida aad tahay.Natii Jada kasoobaxda Guud ahaan Daraasadhan waa mid khusaysa Bulshada oo dhan.sidaasdarted mano qonayso mid taaba naysa Arritimaha cidakaste/Qoys.Su'aalkaste waxaayyeelenaysa xaakad Astaabed oo aan caddaynayn Magacaaga iyo cidda aad tahay.Islamarka ladiyaarinayo warbixiinta AFka iyo Qoraalkana waxaalloo diyaarindoona Qaab aan Mujiinayn Magacaaga iy.ciddaad tahay

6. Xuquuqaha

Kaqayboggalka Daraasadkan waa mid kusalayssan siraalahaanshoah.sidaas darted waxaad xaq uleedahay in aad Daraasadhan aad kaqayb qaadatiid ama aad kaqaybb qaadan.Haddi aad go'saansatid in aad kaqaybqaadatiid Darasaadkan Islamarka cabilaam.Waraysiiga kadib Hadiay DHaido xalad aad kahelin waad gooyn karta.wax carqalad ah oo kulassoodarsikarto mak.ireyso.sidokale haddi ay Jirto su'aal aad Rabin in aad kaJawaabto xorayaad utahay said kaste.

7. Goobta Daraasadleyda

Wixi FaaFahiin ah ee s'u'aalo ah Goobtan itoos kuxusan waad waydin karta.

Lahaansha Daraasadkan waa : Maxamed musema

Cinwaan TeleFoonka091128 4733Imeel ,mohammeggoto1@gmail.comGoobta Guddiga Qiimaynta cilmibaadhijta xaruumaha iaafmaadha Monnnshaha

Ligiinwaanka Telefoonka 0254666201, S.Boosta-235 Harar faxica 0256668081.

8. Xaqisiinta Raaliah aanshaha.

Foomamka adda aymaha kor kuxusan siwaanaagsan ayaan Uu Akhriyey ama ayey Igu akhrismeen.sidaasdarteed Qaabsoiodka Daraa saadkan iyo ujeedaduba Faaiidada waxyeelada,sir aantooda kaqay byalkooa,kaqaybgal la'aantooda.Inaan xor uu ahay sidkalena Islamarka ay dhaido su'aalo aan iinoqon inaan kabixi,karo oo aan kaja waabi uarin ayaan 49 sihgoon UFahmay.Si do kale Islamarka ayllasoodarast.su'aal.aan iicaddayn in aan waydiin

karo,sid.Kalena aan kajawa abikaro su'aalahun DHe eraadka ah aya Goobaha aan laxidhli dhiayo ca iisiiyey.sidaas darted waxaan sixiixayga kuind aynaya in aan RA alikaahay

Magaca iyo suxiixa kaqaybhalaha-----sixaa-----tarikah---/---2018

Xoogaa -----sixaa-----tarikah---/---2018

Magaca Mariyaka jaulsaka -----sixaa-----tarikah---/---2018

Annex 4; English version of the study questioner

Type of establishment's _____

Questionnaires Id no _____

Name of the interviewer _____

Date of interview-----

Checked by supervisor; Name-----

Signature _____

Part I socio demographic factor

| s/no | Variable | Response | Code | Skip to |
|------|---|---|------|---------|
| 101 | Sex | Male=1,femal=2 | | |
| 102 | Age in year | ----- | | |
| 103 | What is your ethnicity | 1 Somali,2,Tigriy, 3.Amhara, 4, Others | | |
| 104 | What is your current marital status? | 1. Single, 2. Married 3 .Divorce 4,Widowed | | |
| 105 | What is your Educational status? | 1, no formal education 2 ,Primary education 3,Secondary education 4, college or more | | |
| 106 | What is your Work experience /service year? | _____ | | |

| | | | | |
|-----|---|--|--|-----------------------------|
| 107 | What is your monthly income/salary in Ethiopian birr? | _____ | | |
| 108 | Did you attend food safety/hygiene training? | 1= yes ,2=no | | If ans.108 no skip to Q.201 |
| 109 | if yes where did you get the training | 1.from warada health office 2. from the establishment it self 3.cultural and turism bureau 4.others | | |

200. food safety knowledge

| | | | |
|-----|---|---|--|
| 201 | Food with enough pathogens to make you sick may look, smell, or taste good. | 1.correct 2.incorrect 3.idon't know | |
| 202 | Really fresh food can cause food poisoning if it is not properly handled | 1.correct 2.incorrect 3.idon't know | |
| 203 | Fresh meat always has microbes on the surface | 1.correct 2.incorrect 3.idon't know | |
| 204 | Canned foods may have harmful microbes | 1.correct 2.incorrect 3.idon't know | |
| 205 | Lettuce and other raw vegetables might have harmful microbes. | 1.correct 2.incorrect 3.idon't know | |
| 206 | Foods can be contaminated with microbes by coming in contact with unsafe foods. | 1.correct 2.incorrect 3.idon't know | |
| 207 | Ready to eat foods (e.g. vegetables) can be prepared on the same cutting board that was | 1.correct 2.incorrect | |

| | | | |
|-----|---|---|--|
| | used to prepare meat | 3.idon't know | |
| 208 | Cutting boards, meat slicers and knives should be disinfected after each use. | 1.correct 2.incorrect 3.idon't know | |
| 209 | Refrigeration kills all the bacteria that might Cause food-borne illness. | 1.correct 2.incorrect 3.idon't know | |
| 301 | Temperature Controls are an effective method of reducing the number of cases of food poisoning. | 0. Strongly Disagree 1.Disagree, 2..Neutral 3. Agree, 4. strongly agree | |
| 302 | All food handlers should have a food Safety training qualification | 0. Strongly Disagree 1.Disagree, 2..Neutral 3. Agree, 4. strongly agree | |
| 303 | Lack of food safety training affects Safe food Handling. | 0. Strongly Disagree 1.Disagree, 2..Neutral 3. Agree, 4. strongly agree | |
| 304 | Unavailability of food handling guideline can affect food safety | 0. Strongly Disagree 1.Disagree, 2..Neutral 3. Agree, 4. strongly agree | |
| 305 | Lack of supervisor commitment affects Safe food handling. | 0. Strongly Disagree 1.Disagree, | |

| | | | |
|-----------------------------------|--|--|--|
| | | 2..Neutral 3. Agree, 4. strongly agree | |
| . 400.Food safety practice | | | |
| 401 | Do you have wash your hands before starting your Work? | 1.always 2. sometimes 3.never | |
| 402 | Do you wash your hands before touching? Cooked foods? | 1.always 2. sometimes 3.never | |
| 403 | Do you use separate utensils when preparing raw and cooked food? | 1.always 2. sometimes 3.never | |
| 404 | Do you check the expiry dates of all products? | 1.always 2. sometimes 3.never | |
| 405 | Do you wear uniform when serving food? | 1.always 2. sometimes 3.never | |
| 406 | Do you smoke cigarettes? | 1.always 2. sometimes 3.never | |
| 407 | If you smoke, do you smoke during your normal work of food handling? | 1.always 2. sometimes 3.never | |
| 408 | Do come to work when ill like upset Stomach or diarrhea?. | 1.always 2. sometimes 3.never | |
| 409 | Do you wear a hat or head covering when | 1.always | |

| | | | |
|--|---|-------------------------------------|--|
| | Serving Food? | 2. sometimes 3.never | |
| 410 | Do you wear jewelry when serving food? | 1.always 2. sometimes 3.never | |
| 411 | Do you disinfect cutting boards after each use? | 1.always 2. sometimes 3.never | |
| 412 | Do make your nail long? | 1.always 2. sometimes 3.never | |
| 302.Institution facilities and materials inspection/observation | | | |
| 1 | Availability of guideline for food establishments | 1 yes ,2 No | |
| 2 | Presence of Hand washing facility | 1. Yes, 2. No | |
| | | | |
| 3 | Does latrine available? | 1. yes, 2. No | |
| 4 | Availability of Insects/rodents | 1. Yes, 2. No | |
| 5. | Supervision by owner /supervisor | 1. Yes, 2. No | |

Amharic Version Of Questioners

8.2. ማሳሰቢያ ማሳሰቢያ

ማሳሰቢያ ማሳሰቢያ-----

| ተ.ቁ | ክፍል አንድ፤-የስነ -ህዝብ እና ማህበራዊ መጠይቅ | መልስ | እለፍ |
|-----|---------------------------------|---|-----|
| 101 | ጾታ : | 1.ወንድ 2.ሴት | |
| 102 | የሰው ጾታ ጾታ ? | --- | |
| 103 | ብሄር : | 1.ሱመሌ 2.ትግሬ 3.አማረ 4.ሌሎች | |
| 104 | የጋብቻ ሁኔታ | 1.ያላገባ/ች 2.ባለትዳር 3.የተፋታ/ች 4.ባለቤቷ/ቱ የሞተባት/ችበት | |
| 105 | የትምህርት ደረጃ | 1. ያልተማረ 2. የመጀመሪያ ደረጃ 3. ሁለተኛ ደረጃ 4. የኮሌጅ ዲፕሎማ እና ከዚህ በላይ | |

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| 106 | እዚህ ስራ ውስጥ ምን ያህል ጊዜ ቆይተዋል ? | ----- | |
| 107 | የወር ደምዝ ስንት ነው ? | ----- | |
| 108 | የምግብ ንፅህና/ ደህንነት ስልጠና ሰልጥነው ያውቃሉ ፣ | 1. አዎ 2. አላውቅም | ጥዋቄ 108 አላውቅም ከሆነ ወደ 201 እላፍ |
| 109 | ተ.ቁ 109 አዎ ከሆነ ስልጠናውን ማን አመቻቸው፣ | 1. የጤና ቢሮ 2. የምሰራበት ድርጅት 3. የባህል እና ቱሪዝም ቢሮ 4. ሌላ ከላ ይግሉ።? | |
| ክፍል ሁለት:-ተሳታፊዎች የምግብ ደህንነት ላይ ያላቸው እውቀት፤ዝንባሌ እና ትግበራ | | | |
| . 200.የምግብ ደህንነት ላይ ያላቸው እውቀት | | | |
| 201 | ምንም እንኳን ሸተዉ እ ና ጠአሙ ጥሩ ሆኖ ምግብ በበሽተ አምጭ ጀርመች ከተበከለ በሽታ ሊያሲዝ የቸለል። | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 202 | ጥሬ ምግቦች በጥንቀቄ ከልተየዙ የምግብ መበከልን ሊያመጡ ይችላሉ። | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 203 | ጥሬ ስጋ ሁልጊዜ ተዋሲያን ይገኙበታል። | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 204 | በታሸገ ምግብ ውስጥ ለጤና ጠንቅ ተዋሲያን ሊኖሩ ይችላሉ ። | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 205 | ሰላጣ እና ሌሎች ጥሬ አትክልቶች በውስጣቸው ለጤና ጠንቅ የሆኑ ተዋሲያን ሊኖራቸው ይችላሉ ። | 1.በትክክል 2. አይደለም 3. አላውቅም | |

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|------------------------------|---|--|--|
| 206 | ምግቦች ደህንነቱ ካለተጠበቀ ምግብ ጋር ንክኪ ካላቸው በተዋሲያን ሊበከሉ ይችላሉ። | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 207 | ለምግብነት የተዘጋጁ ምግቦች ለምሳሌ አትክልቶች ስጋ በተከተረባቸው መክተፊያ በመጠቀም ማዘጋጀት ይቻላል ። | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 208 | መክተፊያ ስጋ መፍጫ እና ቢላዋ ከተገ ለገልን በኃላ መፀዳት አለባቸው ። | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 209 | ማቀዝቀዝ ሁሉንም ምግብ ወለድ በሽታ አምጭ ባክቴሪያዎች ይገድላል፡ | 1.በትክክል 2. አይደለም 3. አላውቅም | |
| 300. የምግብ ደህንነት ላይ ያላቸው ዝንባሌ | | | |
| 301 | የሙቀት ቁጥጥር የምግብ መመረዝን ለመቀነስ ፍቱን መድኃኒት ነው | 0. በጣም አልስማማም 1.አልስማማም 2.ፍቃደኛ አይደለሁም 3.እስማማለሁ 4.በጣም እስማማለሁ | |
| 302 | ሁሉም ምግብ እና የምግብ መገልገያ ቁሳቁሶች ጋር ቀጥተኛ ንክኪ ያላቸው የ ምግብ ቤት ሰራተኞች የምግብ ደህንነት ስልጠና ሞያ ሊኖራቸው ይገባል | 0. በጣም አልስማማም 1.አልስማማም 2.ፍቃደኛ አይደለሁም 3.እስማማለሁ 4.በጣም እስማማለሁ | |
| 303 | የ ምግብ ደህንነት ስልጠና እጥረት የ ምግብ አያያዝ ላይ ተጽእኖ ያደርጋል | 0 በጣም አልስማማም | |

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| | | 1 አልስማማም 2 ፍቃደኛ አይደለሁም 3. እስማማለሁ 4 በጣም እስማማለሁ | |
| 304 | የምግብ አያያዝ መመሪያ ያለመኖር ደህንነቱ የተጠበቀ የምግብ አያያዝ ላይ ተፅእኖ ይኖረዋል. | 0 አልስማማም 1 በጣም አልስማማም 2 ፍቃደኛ አይደለሁም 3. እስማማለሁ 4 .በጣም እስማማለሁ | |
| 305 | የተቆጣጣሪዎች ተነሳሽነት ማነስ ደህንነቱ የተጠበቀ የምግብ አያያዝ ላይ ተፅእኖ ያደርጋል | አልስማማም 1 አልስማማም 2.ፍቃደኛ አይደለሁም 3. እስማማለሁ 4 .በጣም እስማማለሁ | |
| 400. የምግብ ደህንነት /ንጽህና ትግበራ | | | |
| 401 | የምግብ ቤት ከመጡ በኋላ ስራ ከመጀመሩ በፊት እጅን ይታጠባሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 402 | የበሰለ ምግብ ከመንከቶ በፊት እጅን ይታጠባሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 403 | ለጥሬና ለበሰለ ምግብ የተለያዩ መክተፍፊያ ይጠቀማሉ? | 1.ሁልጊዜ 2.አንዳንዴ | |

| | | | |
|-----|---------------------------------------|-----------------------------|--|
| | | 3.በጭራሽ | |
| 404 | ምግቦች ግዜያቸውን መለፍ አለማለፉን የሚያዩበት ሁኔታ አለ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 405 | የምግብ አገልግሎት ሲሰጡ የደንብ ልብስ ይለብሳሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 406 | ሲጋራ ያጨሳሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 407 | የሚያጨሱ ከሆነ በመደበኛ ስራዎ ግዜ ያጨሳሉ? | | |
| 408 | እንደ ተቅማጥ ዓይነት በሽታ ሲይዙት ወደ ስራ ይመጣሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 409 | እንደ ተቅማጥ ዓይነት በሽታ ሲይዙት ወደ ስራ ይመጣሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 410 | በመደበኛ ስራዎ ወቅት ጸጉሮትን ይሸፍናሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 411 | በተጠቀሙ ሠዓት ሁሉ መክተፊያ ያጸዳሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |
| 412 | የእጅ ጥፍሮትን ያሳድጋሉ? | 1.ሁልጊዜ 2.አንዳንዴ 3.በጭራሽ | |

| 500. የምልከታ ችክ ሊስት የተቋሙ ሁኔታ | | | |
|----------------------------|-----------------------------------|-----------------|--|
| 501 | ለምግብ ሰራተኞች የምግብ ንጽህና መሪያ አለ? | 1. አለ 2. የለም | |
| 502 | አገልግሎት የሚሰጥ የቧንቧ ውሃ ለምግብ ሰራተኞች አለ | 1. አለ 2. የለም | |
| 503 | ለምግብ ቤቱ መጻዳጃ አለ? | 1. አለ 2. የለም | |
| 504 | ነፍሳትና አይጦች በምግብ ቤት ውስጥ አለ? | 1. አለ 2. የለም | |
| 505 | የሚመለከተው አካል ቁጥጥር ያደርጋል? | 1. አለ 2. የለም | |

Af Somali version of questioner

| Tiro | Warbixinta shakhsiyadeed | Jawaabtiisa | |
|------|--|---|--|
| 1 | Jinsiga | 1.lab 2.dhadig | |
| 2 | Da,diisa | ----- | |
| 3 | Qabiil kiisa/keeda? | 1.soomali 2.Tigrai 3.Amhara 4.Intakale | |
| 4 | Xaalada guurka? | 1.maguursan 2.guursaday 3.wuu furay 4.kadhintay | |
| 5 | Xeerka waxbarashada? | 1.dugsiga hoose 2.dug/dhaxe 3.dug/sare 4.kuliyada/jamacada | |
| 6 | Xeerkhibradeed | ----- | |
| 7 | Dakhliga/mushaarkiisa | ----- | |
| 8 | Tababar kusabsandiy aarinta cuntooyink amiyaad qaadatay | 1.haa 2.maya | |

| | | | |
|---|--|--|--|
| 9 | Hadiiaadma qashayiyaad kamaqashay? | 1.tababarada 2.shaqaalaha caafimaadka 3.journalada | |
| 200 .Cilmigak usaabsan cuntooyinka | | | |
| 201 | Cuntadiixumaatadhandhanwanaagsanaayleedaha | 1. Sax 2. KHalad 3 .Magaranay | |
| 202 | Cuntada wanaag sanhadiisifiican loo habeen waayo sun ayaynoqonaysa. | 1. Sax 2. KHalad 3 .Magaranay | |
| 203 | Cadka Qaydhin Had iyo Jeer Dirxi aya lagahek | 1. Sax 2. KHalad 3 .Magaranay | |
| 204 | Cuntada Jaxaasan Ilmarag caafimaadka Hadis uu ah aya kujirikara | 1. Sax 2. KHalad 3 .Magaranay | |
| 205 | Salaadka iyo khudarta waydhin ee kale Gudahooga Ilmarag Halis uu ah iaa Fmadka in aay kujiraan ayay no qon karta. | 1. Sax 2. KHalad 3 .Magaranay | |
| 206 | Cu ntooyнку Hadday Isdhaxgal layeeshaan cunto aan Daryeel taxadar Isam amyn waxay Halis uh,rseedi karaan Ilmaa ragtad | 1. Sax 2. KHalad 3 .Magaranay | |
| 207 | Cuntayoyinka loo diya ariyey Cunt. Ahaaa Tus'aale ahaan khudaarta Qalabua Go'Qyata Ciadka lagugoogooyey lata lastic maa lo waa ladiyaarinkara. | 1. Sax 2. KHalad 3 .Magaranay | |
| 208 | Gooyooye, Ridqiim iyo midi kadib Is'lama run laitic maal. Waan lanadiifiyo | 1. Sax 2. KHalad 3 .Magaranay | |
| 209 | Qahoo Jiatu Cuduurada kadhaha cuntada oyu Diila | 1. Sax 2. KHalad 3 .Magaranay | |

| 300 kalinta ay kuleeyiihila kaqaybgele yaas’hu Darye el Kacuntada | | | |
|--|--|---|--|
| 301 | Dabagalka kulku waxa uu DHima s’um oo waga cuntada taa s’oo uu ah daw xalah. | 0. Heeshis Hooga Aa, 1. Mataagersani 2. Raali kamaihi 3.waantaageersanahay 4.Heeshis Hooga | |
| 302 | Waxa Loob aahanyahay In ayyeeshaan xirfad tababar Darel cunto DHamaaan shaqaalaha kuhawlan cuntada iyo la Q’idhiidha Qalabka Adeega cunt | 0. Heeshis Hooga Aa , 1. Mataagersani 2. Raali kamaihi 3.waantaageersanahay 4.Heeshis Hooga | |
| 303 | Yaraanta tababarka Daryeelka cunto waxa uu Halis kadhiga Qaabka xafi diida cuntada | 0. Heeshis Hooga Aa 1. Mataagersani 2. Raali kamaihi 3.waantaageersanahay 4.Heeshis Hooga | |
| 304 | Jiritaan la’aanta Awaamir xafii daad cunto waxa uu Halis ugu horseeda Daryeelka cuntada | 0. Heeshis Hooga Aa 1. Mataagersani 2. Raali kamaihi 3.waantaageersanahay 4.Heeshis Hooga | |
| 305 | Yaraanta kago’ naashaha iyo Isxil qaad waxa uu Halis kadhiga Dareelka cuntada | 0. Heeshis Hooga Aa 1. Mataagersani 2. Raali kamaihi 3.waantaageersanahay 4.Heeshis Hooga | |
| 400 Maxa qiiJiisa mudadda Adeeg kahor Intaad Is’tic maalin wax s’oo sar cunto oo DHan.. Hirgelinta Daryeelka/Nadaa Fada cuntada | | | |
| 401 | Itnaaada shaqada bilaa bin gacafaa damiya dfarxalatay | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 402 | Kahor Intaanad taaban cunto Bisil Gacmahaaga maydho | 1. Marwalba 2. Mar-mar 3. Madhacdu | |

| | | | |
|-----|---|--|--|
| 403 | Ma istic maasha Qalab kaladuwan Diyaarinta cunto Bisil iyo Qeydhiin | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 404 | Maxa qiiJiisa mudadda Adeeg kahor Intaad Is'tic maalin wax s'oo sar cunto oo DHan | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 405 | Maxidhata DHarka shaqo Islamkaad Fullinaysiid Adeega cunto. | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 406 | Sigaar miyadcabta | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 407 | Maarkad cuntada diyarinney sokawaaran | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 408 | Islamarkaad Dareentid xannuun (sida xumad Qabsin iyo waliba shuban) s'haqada matimaada | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 409 | Maistic maasha Qalabka timaha laguqariyo Islamarkaad Bixiineysiid Adeega cuntada | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 410 | Ma S'oo xidhata hil qada iyo silis Islamarkaad Bixiineysiid Adeegacunto | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 411 | Had iyo Jeer Islamarkaad Ictic maashiid Qalabka Goo gooynta manadiifiisa | 1. Marwalba 2. Mar-mar 3. Madhacdu | |
| 412 | Gacanty ugilista habita | 1. Marwalba 2. Mar-mar 3. Madhacdu | |

| Tiro | Qalabyadaada | Jawaba |
|------|--------------------------------|-------------------|
| 501 | Buugaagta lagaduula yowayfala? | 1. Haa 2. Maya |
| 502 | . Farxal kumi yuudi yaaruyahay | 1. Haa 2. Maya |
| 503 | Swuli yamiyurle yahay | 1. Haa 2. Maya |
| 504 | Jikadu may tala | 1. Haa 2. Maya |
| 505 | Cayayaan kumiyir kunoolyahay ? | 1. Haa 2. Maya |

500. hoteeda daxaladooda and qalabyadaada