ADDIS ABEBA UNIVERSITY COLLEGE OF HEALTH SCIENCES SCHOOL OF PUBLIC HEALTH

Assessment of sanitary conditions of Public Food and Drinking Establishments in Yeka Sub-City, Addis Ababa

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APPROVED BY THE BOARD OF EXAMINERS

A thesis research advisor and co-advisor, we hereby certify that we have read and evaluated this thesis prepared under our guidance by Gezahegne Mulatu, entitled Assessment of sanitary conditions of public food and drinking establishments in Yeka Sub-City, Addis Ababa. We recommended that it will be submitted as fulfilling the thesis requirement.

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DECLARATION

By my signature below I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis, and completion of the thesis.

All scholars' matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources in the document. Every serious effort has been made to avoid any plagiarism in the preparation of the thesis.

The thesis is submitted in partial fulfillment of the requirement for a master of public health degree to Addis Ababa University health Science College, school of public health. I would like to declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma and certificate.

Name_____ Signature_____

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Abbreviations and acronyms

AOR Adjusted Odds Ratio

CDC Center for Disease Control

CI Confidence Interval

FAO Food and Agricultural Organization

FMHACA Food Medicine Health Care Administration and Control Authority

FMoH Federal Ministry of Health

MoH Ministry of Health

MOS Micro-organisms

REC Research Ethical Committee

SPSS Statistical Package for Social Sciences

WHO World Health Organization

Abstract

Background: Food prepared in large quantities are liable to contamination & to the rise of food-borne diseases. Currently eating & drinking in mass catering establishments is likely to be common.

Objectives: The objective of this study was to assess the sanitary practice of public food and drinking establishments and determine associated factors in Yeka Sub-City Addis Ababa, Ethiopia.

Methods: A cross-sectional study was carried out between July 2020 and Oct 2020. 409 participants (food and drinking establishments) with a 100% response rate were included for this study. Trained sanitarians collected data using structured, pre-tested questionnaires & observation checklists. Data was entered using Epi-data and data analysis was done using SPSS (version 25). Bivariable and Multivariable logistic regression analyses were conducted to determine associations between pertinent variables. P-value <0.05 were considered to indicate a significant statistical association.

Results: The study showed 48.2% of food and drinking establishments were under improper sanitary conditions. Training of managers on food hygiene was strongly associated with the overall sanitary practice by (AOR=2.39, 95% CI: 1.353-4.2468), using the standard 3-compartment dish/glass washing basin were significantly associated by (AOR=4.75. 95% CI: 2.687-8.400) respectively, with the overall sanitary practice of food establishments.

Conclusion: Improper sanitary practice was observed in a large proportion of food establishments. The absence of trained managers was a significant factor associated with the proper sanitary practice of food establishments. Regulatory bodies should conduct regular inspections of the establishments to promote and ensure proper hygiene and sanitation practices.

KEYWORDS: sanitary condition, food establishment, sanitation practice, Ethiopia

1 Introduction

1.1 Background:

Food is a fundamental human need and basic necessity for good health, a source of energy, vitamins, and minerals (1). The supply of adequate, wholesome food and drink is one of the essential parts of primary health care (2). Food can be subjected to contamination with toxic substances and pathologic organisms during production, transportation, preparation, storage, and services. Food-borne diseases can be caused by different pathogenic organisms like bacteria, viruses, fungi, and parasites that contaminate food at some part of the food chain between farms and forks. Chemical contamination of foodstuffs like lead, mercury, arsenic, and Aflatoxins may cause a range of acute and chronic health effects with a possibility of mortality (3). Like Neurodevelopmental disorders, cardiovascular diseases, cancers, and renal diseases most prominently diarrheal diseases are the most common (3).

In many urban centers eating and drinking in mass catering establishments like restaurants, hotels, cafeterias, and snack houses is likely to be common (4). These establishments prepare, handle, and serve large quantities of food and drink to large groups of people within a short period implying a possible risk of infections (4). Food prepared in large quantities is liable to contamination and the rise of foodborne diseases if the strictest principles of hygiene are not maintained (5).

Food-borne diseases have been a global challenge in both low-income and industrialized countries and it persisted as a major public health problem, which consumes a significant amount of health care resources particularly in the developing world (6). The WHO report on African and southeast Asian regions indicates the highest incidence and death rates, including among children under the age of five years (4). Despite the considerable burden of foodborne illness on health and socio-economic development food safety interventions` have remained the least priority in developing regions (6).

The increase in the incidence of food-borne diseases is often associated with outbreaks that end up threatening global public health security (6). The risk of epidemics has been observed in the era of globalization that is characterized by the increased frequency of travel and eating outside of the home (7). According to WHO estimates, two million people in developing countries die due to foodborne diseases each year; whereas 30% of people in developed countries have a medical condition from foodborne diseases annually (3).

In Ethiopia like other developing countries, adequate and reliable data on foodborne illnesses/infections are not available and the existing disease reporting system does not clearly and quantifiably indicate the prevalence of food-borne diseases (8). Based on some out-patient morbidity

statistics from selected health facilities, the annual incidence of foodborne illnesses ranges from 3.4% to 9.3% with a median of 5.8% (9). Poverty is the main reason for the consumption of unsafe food in the African Region in addition to that, other factors such as; the absence of clean water, weak regulatory/supervisory activities, the rise of population, and poor environmental conditions intensify the situation (10). The rise of diarrheal disease occurrence among children is an indicator of the food hygiene condition and the inappropriate food preparation practices in the Region (10).

A few sets of reported data from Addis Ababa(6), Awassa(11), Bahir Dar(12), Mekele (13), Zeway (14), and Awash Sebat Killo (15) showed the prevailing poor sanitary situations of catering establishments in these urban centers. Despite the considerable burden of foodborne diseases on health and socio-economic development, food safety interventions have remained at the least priority in developing nations, like Ethiopia(6).

Low levels of sanitary conditions of catering establishments and weak hygienic practices by food handlers, Lack of infrastructure, and inadequate sanitary practices in food catering establishments are the major causes of foodborne illness and outbreaks (8).

1.2 Statement of the problem:

Poor sanitary conditions of food and drinking establishments are among the major causes of the occurrence of food-borne illnesses. Our country, Ethiopia has not yet established adequate surveillance or reporting mechanisms to identify and track foodborne illnesses. Therefore data on foodborne diseases are extremely scarce and improvements are needed to better identify the major causes.

In Ethiopia, there is not enough documented data about the magnitude of foodborne diseases in association with poor sanitary conditions of catering establishments. The City of Addis Ababa is growing at large in terms of infrastructure, including its population and the number of food establishments. The above studies are remote to indicate the current sanitary status of food and drinking establishments in Yeka Sub-City Addis Ababa. Hence, this study aims to determine the magnitude of the sanitary conditions/practice of food and drinking establishments and to identify factors associated with them.

1.3 Rationale of the study:

Ensuring food safety to safeguard public health continues to be a significant challenge in the background of the urban centers (4). Since published data are very limited in this area, it was found that gross insanitary conditions are assumed to prevail in food and drink establishments in the capital city since dining outside of a home is becoming a common habit and the number of catering establishments is

very large. This study is expected to provide basic information in a vital area of Public Health and to identify associated factors affecting sanitary conditions of food and drinking establishments.

1.4 Significance of the study:

The results of the study will provide a clear description of the sanitary condition of the mass catering establishments concerning different bivariate and multivariate variable relationships and provide systematic information for local policymakers and planners in designing interventions to improve the sanitary conditions of food and drinking establishments (6).

2 Literature review

2.1 The definition and classification of sanitary status of food establishments:

Food contamination may occur at any point during its journey through production, processing, distribution, and preparation. The risk of food getting contaminated depends largely on the health status of the food handlers, their hygiene, knowledge, the practice of food hygiene, the sanitary and hygienic environment at the food and drinking establishments (16). Mishandling and disregard hygienic measures on the part of the food handlers and the establishment enable pathogenic bacteria to come into contact with food and drinks, in some cases bacteria survive and multiply in sufficient numbers to cause illnesses in consumers (7). Sanitary condition of a catering establishment means effective systems which help to ensure adequate and appropriate maintenance and cleaning, control pests, manage wastes and monitor the effectiveness of maintenance and sanitation procedures (17).

There are more than 250 different foodborne diseases worldwide, most of those diseases are infectious and are caused by a variety of bacteria, viruses, and parasites, Other food-borne diseases can be poisonings caused by harmful toxins or chemicals like poisonous mushrooms and entero-toxins of some bacteria (18).

According to WHO foodborne diseases, are major public health problems (3). From time to time developing countries are more at risk of this because of not only faulty food handling practices, or the presence of a vast number of food-borne pathogens but also an inadequate supply of safe drinking water and poor environmental sanitation (3). According to WHO report 2000, an estimated 70% of diarrheal diseases are associated with the consumption of contaminated food in developed countries(3). Between 1998 and 2004, an average of 9040 foodborne disease outbreaks was reported to the Center for Disease Control and Prevention (5). Approximately 4675 (52%) of those are attributed to public food and drinking establishments (9). To control and prevent food-borne illnesses food hygiene is a must, which comprises of hygienic practices of food handlers and hygienic environment at the food and drinking establishments (7).

2.2 The sanitary status of food establishments in Ethiopia:

Studies conducted in different parts of Ethiopian urban centers revealed that there were grossly unhygienic conditions of catering establishments (13). The high rate of poor repair conditions of premises, inadequate sanitary facility, improper waste storage, and disposal were the major findings (18). Food handlers in developing countries are more likely to be carriers or infected with pathogenic organisms than food handlers in developed countries (1).

The study conducted in Woldia Town found that most of the establishments had a low level of sanitary conditions (4). A similar study conducted in Adwa, Tigray Regional State indicated that 53.3% of food and drinking establishments were in poor sanitary conditions (9). The study conducted in Arada Sub-City Addis Ababa in 2017 showed that 58.8% of food and drinking establishments were under poor sanitary conditions (6).

In food hygienic practices the most important aspect is a good practice which can't be carried out on poor premises. The design and construction of rooms, the equipment used in them, and the surfaces on which food is handled must all have to be in good hygiene practice (1). Food handlers should be encouraged to develop good personal habits. Keeping themselves clean and dressed and required to follow good sanitary procedures while on the job. They should also be encouraged to report immediately if they are ill (6). It is also the responsibility of the owner/manager to ensure that operators and food handlers' follow proper food handling and sanitation practices to ensure the safety of foods (20).

Education can help food handlers to play a greater role in the provision of safe food but due to the high turnover of migrating food handlers formal training may be impractical. However, managers must be trained in the principles of food hygiene so that they can in turn train and supervise workers responsible for processing, preparation, storage, and serving foods (20).

According to the Ethiopian Ministry of Health Annual Report of 2003/4, Dysentery and gastroenteritis were among the top ten diseases of out-patient visits. The number of cases associated with foodborne diseases is highly under-estimated due to poor reporting, documentation, and poor health-seeking behavior of patients. For example in Tigray Regional State, of all diseases reported from governmental health institutions in 2003/4 Gastroenteritis, Amoebiasis, Bacillary dysentery, Typhoid, Helmentiasis and other intestinal parasitic infections account 18.4% or 345,959 cases (19), Foodborne diseases prevail in mass catering establishments that do not comply with sanitary and hygienic food handling and preparations. Interventions with supportive supervision that focus on the improvement of those factors are believed to reduce the incidence of food-borne diseases (9).

Unfortunately, the premises of mass catering establishments do not have all the necessary basic sanitary facilities required for the productions of safe catering services (21).

Studies conducted in Addis Ababa (22) and Adwa (8) Revealed that proper repair conditions of premises, inadequate sanitary facility, improper waste management, and inadequate client`s hand washing basins and utensils washing sinks were common features of catering establishments (9).

Food handlers have a basic responsibility to maintain a high degree of potential hygiene and food handling practices (4). But they have almost no knowledge about the ways and means of food contamination and usually have low standards of personal hygiene for the tasks they are expected to perform (7).

The study conducted in Addis Ababa revealed that only 50% of food handlers have had a satisfactory condition of practice on the use of Gowon and hair cover during working and 46% were found to be without any kind of protective outer garment (15).

Another study done in Hawasa and Zeway showed that the prevalence of intestinal parasitic infection and some obvious form of active skin and respiratory infections among food handlers were 63% and 14.8% respectively(9,11)(14,23).

The study conducted in Addis Ababa shows that about 60% of public catering establishments did not have refrigerators; even around 47% of those establishments that had refrigerators could not adjust the temperature properly, in fact, one-third of the establishments were found with spoiled perishable foodstuffs (15).

2.3 Factors affecting the sanitary status of food establishments:

Various factors such as the general sanitary standards of the house, proper use of sanitation facilities like latrines, hand-washing lavatories, refuse management systems, and dishwashing facilities affect food safety in food establishments (13). Food handling, preparation, and servicing practices are other important factors in determining the safety of food. Conditions of cooking utensils, food storage systems (time and temperature), as well as food handlers' knowledge and practices similarly, affect food safety directly or indirectly (13).

The study conducted in Woldia Town found that most of the establishments had a low level of sanitary conditions (4). The main problems were the poor state of repair of kitchen and dining room floors; insufficient solid and liquid waste management; Lack of latrine facilities and poor latrine management; Lack of acceptable types of facilities for clients to wash their hands, and for kitchen staff to wash dishes and glasses. Food establishments that were checked frequently by regulatory authorities had good sanitary practices compared to non-inspected establishments (4). Regulatory bodies should conduct frequent inspection visits to food and drink establishments to encourage and assure good sanitation practices (4).

Another study conducted in Bahir Dar Town on 455 subjects revealed that Sixty-six percent of the establishments had flush toilets whereas 5.9% of the establishment had no toilet at all (21). Only 149 (33.6%) of the establishments had a proper solid waste collection receptacle and there was a statistically significant association between the sanitary conditions and license status of the establishments ($p=0.01$). Most of all, the knowledge gap in food hygiene and handling practice were observed. In addition, there was a statistically significant difference between trained (professional) handlers and non-trained handlers concerning food hygiene practices ($p<0.05$). While more than 50% of the handlers prepare meals ahead of the peak selling time, more than 50% of the leftover was poorly managed (12).

A similar study conducted in Adwa, Tigray Regional State indicated that 53.3% of food and drinking establishments were in poor sanitary conditions: Only 9.8% of the establishments had isolated latrines for males and females (9). Availability of trained managers on hygiene and sanitation (AOR = 2.6, 95% CI: 1.7-4.1); inspection by the regulatory body (AOR = 1.95, 95% CI: 1.36-22.4) and availability of license (AOR = 1.2 95% CI: 1.11-2.51) were associated factors which affect sanitary conditions of the establishments (9).

The study conducted in Arada Sub-City Addis Ababa in 2017 showed that 58.8% of food and drinking establishments were under poor sanitary conditions; only 16.5% of the establishments had a

proper liquid waste disposal facility, and only 7.2% had a suitable dishwashing facility (6). Availability of trained managers on hygiene and sanitation (AOR = 2.56, 95% CI: 1.66-3.94); inspection from the respective body (AOR = 4.41, 95% CI: 2.9-6.8) and the distance between kitchen and toilet (AOR = 1.8, 95% CI: 1.1-3.0) were associated factors with sanitary conditions (6).

2.4 Existing regulations of the sanitary and hygienic conditions of food establishments:

The existing rules and regulation which was prepared by the federal FMHACA, as a guideline or source, for Regional offices to modify and adapt with their Regional condition. The rules and regulations have Critical, Major, and Minor points to be addressed specifically to maintain the cut-off points and be certified by the office.

Almost all of the hand full studies were conducted in urban centers of Ethiopia. showed; the majority of the establishments had poor sanitary conditions; where the absence of sanitary facilities for waste management was the major cause (personal conclusion). Regulatory bodies should conduct regular inspections of the establishments to promote and ensure proper hygiene and sanitation practices. The Sanitary conditions of many Catering establishments were not satisfactory due to the high proportion of unsanitary conditions of the premises; therefore the probability of food contamination in these establishments is high. Legal licensing, sanitary inspection, and self-control have a positive impact on the improvement of sanitary conditions of catering establishments. As the solution to improve unsanitary conditions of catering establishments a regular follow-up (inspection of sanitary conditions of the establishments) is needed. Training of catering managers was rewarded in turn to train and supervise food handlers. Planning and implementation of proper waste handling and disposal is a must to be improved.

3 Conceptual frameworks

The conceptual framework for factors that can affect the sanitary condition of public food and drinking establishments is prepared based on a literature review.

The conceptual framework was designed, based on the relationship between the proximal, intermediate, and distal factors on how they influence the sanitary condition of food & drink establishments. Here Literature review was used to formulate this framework. The dependent variable was the sanitary condition of catering establishments. The framework shows how sanitary conditions as an outcome are related to various factors (Figure 1).

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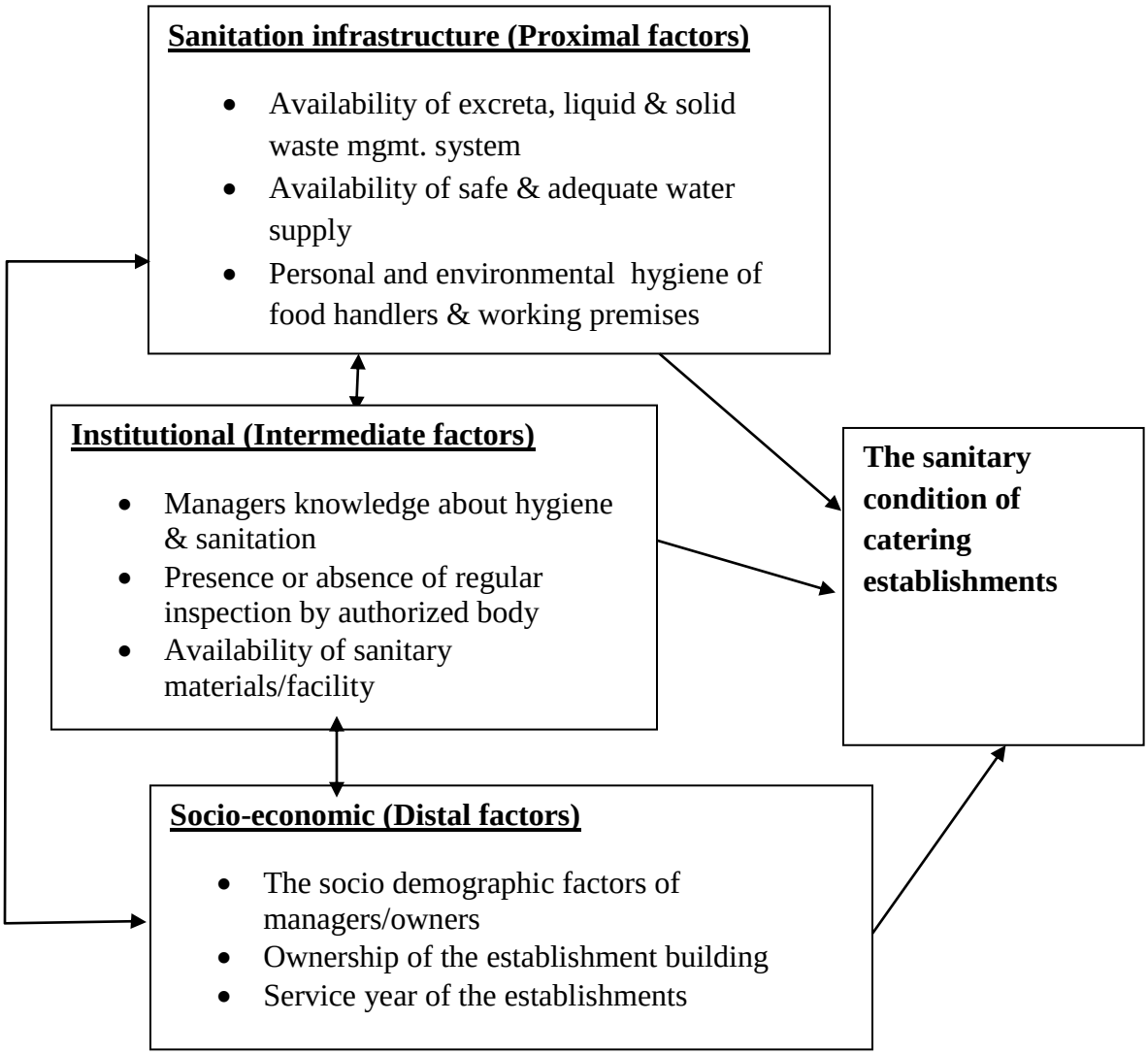


Figure 1: Conceptual framework for assessment of the sanitary condition of catering establishments.

4 Objectives

General objective: The main objective of the study was to assess the sanitary practice of public food and drinking establishments in Yeka sub-city Addis Ababa Ethiopia.

Specific objective:

1. To determine the magnitude of the sanitary practice of food and drinking establishments.
2. To identify factors associated with the sanitary practice of food and drinking establishments.

5. Methods

5.1. Study design:

A cross-sectional study was conducted to determine the sanitary practice of food and drinking establishments and identify their associated factors.

5.2. Study area and period:

Addis Ababa is the capital city of Ethiopia which has 10 Sub-City administrations and 116 Woredas. Yeka Sub-City was chosen with the lottery method among the ten Sub-city for this particular study.

Yeka sub-city, Addis Ababa Ethiopia. It is one of the ten sub-cities which is located in the northeastern parts of the town with a total area of 85.98 square kilometers wide. According to the Yeka sub-city Administration office, 4,284.9 people live in one square kilometer. The estimated entire current population of the area is about 587,418. Currently, it is divided into 14 woredas' and there are a total of 2053 licensed food and drinking establishments in the Sub-City (Yeka sub-city FMHACA personal communication) and the study was conducted from Aug 2020 to Oct 2020. According to Addis Ababa FMHACA, Yeka Sub-city FMHACA was in the top three sub-cities with better performance in the last five years. This study will determine the magnitude of sanitary practices in this sub-city.

5.3. Source and study population:

The source population was all licensed food and drinking establishments in Yeka Sub-City. Such as Hotels, Restaurants, Bar & Restaurants, Café & Restaurants, Cafeterias, Butchery shops, Pastry/Bakeries, and Juice houses.

The study population was Four hundred and nine mass catering establishments were assessed in Yeka Sub-City, Addis Ababa.

5.4. Inclusion criteria:

All licensed food and drinking establishments which prepare food and drinks for sale and have service years of at least 6 months and above? Due to its volatile existence in today's highly competitive market establishments which can sustain six months and above are included. Since their sustainability in the business is most unlikely. Hotels, bars & restaurants, restaurants, café & restaurants, cafeterias, butchery, pastry/bakery, and juice vendors. Due to its low grade with complex nature and more of its volatile existence in the market non-licensed establishments were excluded.

5.5. Exclusion criteria:

Establishments that provide temporary services for limited hours, street food vendors, canned and packed foods, local "tej bet" and "tela bet" due to its complex and severely low-grade status, with their majorly unlicensed service and existence it was excluded. Managers or supervisors were respondents to the questionnaire used in this particular study.

5.6. Sample size determination:

A sample size of 409 was calculated for objective one based on the assumption of overall poor sanitary conditions in 58.8% of the establishments (6), 5% expected margins of error, and 95% confidence level, adding 10% contingency for non-response. The sample size (n) required for the study was calculated using the formula to estimate a single population proportion.

$n = \frac{[(Za/2)2\ P\ (1-P)]}{d2} = 372 + 10\% = 409$ Where n= required sample size

d= an absolute precision

Za/2 = critical value for normal distribution at 95% confidence interval which equals to 1.96

(Z value at alpha=0.05).

P=58.8% Established prevalence based on the study done in Arada sub-city,

D=5% design effect.

Sample size calculation for specific objective two:

Table 1: The sample size for the second specific objective is calculated using EPI-INFO version 7.2.1 with the assumptions: Confidence interval = 95%, Power of test = 80%

Variable	Outcome in		Odds ratio (AOR)	Power	Sample size (n)	Total sample size With 10 % non-resp.. response rate	Reference
	exposed	unexposed					
Training on food hygiene of manager's	53.5%	36.4%	2.3	80%	288	317	(6)
Regulatory inspection	61.1%	26.7%	4.3	80%	76	84	(6)

Comparing the sample size with the first objective, then with the second objective; the first objective yields a larger sample size, which is 409 was considered as an appropriate sample size for both objectives.

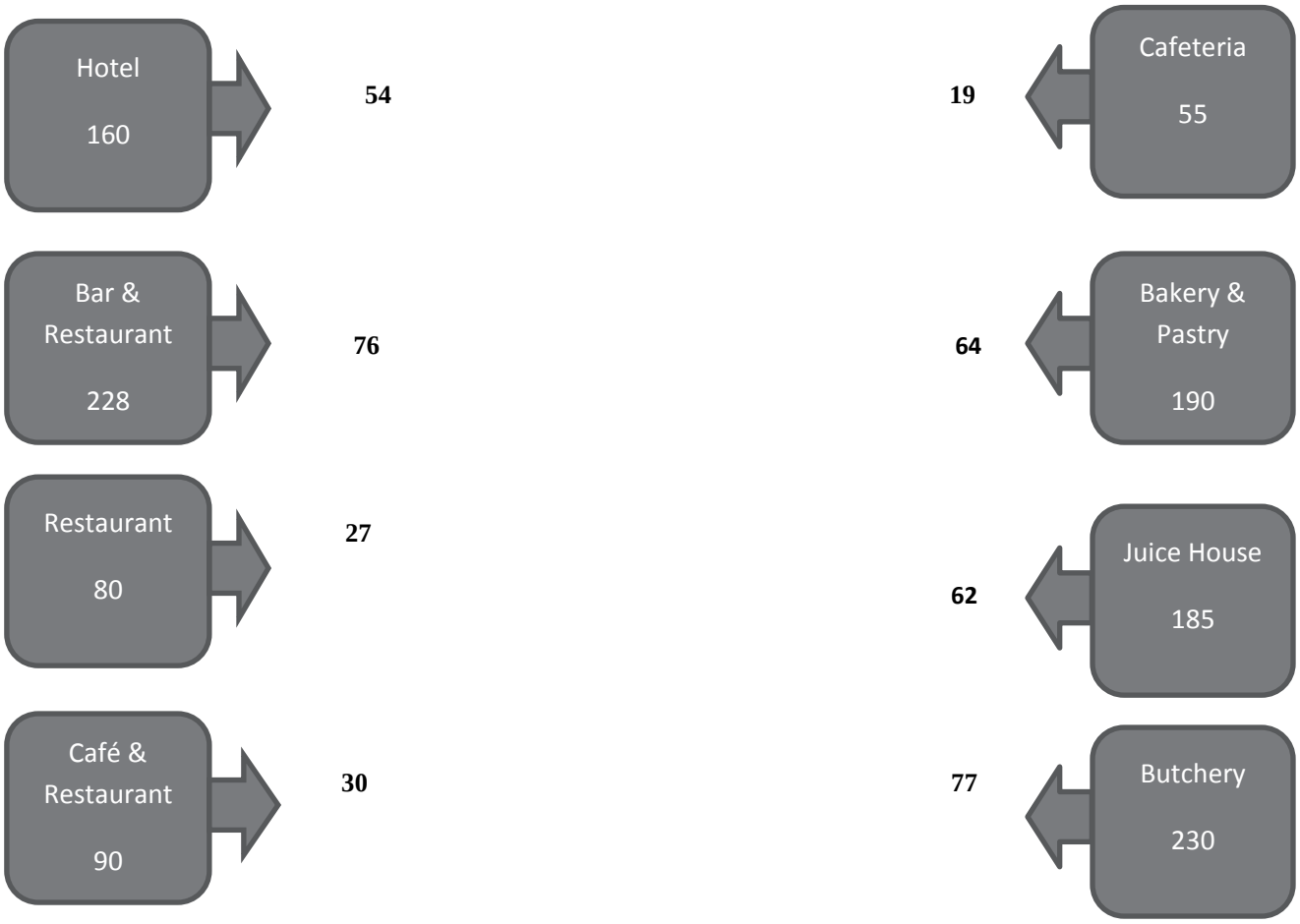
5.7. Sampling methods:

All the fourteen woredas' of Yeka Sub-City were included in the sampling frame. It was from those target establishments, that the required sample size was taken according to the size of the sample frame in each woreda. The establishments were stratified by the type of service they deliver/provide into the following strata; Hotel, Café & restaurant, bar & restaurant, restaurant, cafeterias, and butchery shops, pastry shops, juice vendors. Here the main purpose of the stratification was to avoid over and under-representation of a certain type of establishments in other words to ensure representativeness in each stratum. The proportional sample size was determined for each stratum and a random selection was performed. And with a simple random sampling technique establishments were selected as per the proportionally allocated quota.

To ensure equal representativeness and to avoid over and under-representation the total sample size was divided based on population proportion sample size into the strata. Then each stratum was proportionally divided.

This sampling procedure was included both food establishments which are controlled & supervised by the sub-city (hotel, restaurant, bar & restaurant, cafe & restaurant, cafeteria), and those supervised only by the woreda (butchery, pastry, and juice vendors).

Figure2. Sampling strategy of food catering establishments in Yeka Sub-City, Addis Ababa



Total sample size = 409

5.8 Data collection methods:

Questionnaire:

The tools used for data collection were structured and pre-tested questionnaires and an observation checklist. The questionnaire which is pre-tested and adopted from other similar studies was used to obtain the socio-demographic characteristics or the background of the establishment owners/managers. Information was collected from owners/managers for the questionnaire (1).

Observation checklist:

While structured checklist was adopted from similar studies and the Food Medicine Healthcare Administration and Control Authority (FMHACA), currently operational inspection checklist (the checklist currently used by FMHACA) will be used to observe/assess information and test practically the object or the process under investigation and collect data on the status of the physical conditions of the catering establishments, sanitary facilities such as water sources, liquid, and solid waste management, lavatory facilities, washing facilities for food utensils, and latrines. Repair conditions of premises, toilet facility, refuse management, dishwashing facility, and the like, the checklist also allows the interviewers to record their observations.

Data collection team:

One senior sanitarian for supervision and two junior sanitarians with Bachelor's Degrees in Environmental Health and experience in sanitary inspection activities we're involved in field data collection. The training was given to data collectors on the overall study & on how to collect field data, and also how to supervise the process. The legal permission of the establishments to serve food and drink was checked by observing the approved certificate by the legal authority.

5.9. Variables of the study:

5.9.1. Dependent variable:

- The magnitude of Sanitary practice (proper Versus improper sanitary practices)

5.9.2 Independent variables:

- The Socio-Demographic Variables of managers/owners like(sex, age, marital status, educational status, ownership of the establishment)

- Presence of sanitary facilities like chemicals and detergents, sewerage systems, washing basins, and sinks.
- The status of excreta, solid and liquid waste disposal
- The status of adequate & safe water supply
- Personal & Environmental hygiene of food handlers and working premises
- Presence or Absence of regulatory inspection
- Presence or Absence of trained manager on hygiene & sanitation.
- Characteristics of The Food & Drinking Establishments

5.10. Operational definitions for key variables:

Adopted from some similar study sources and prepared based on the questionnaire (the magnitude of sanitary practice).

Food and drink establishments: Is an institution that provides food and drink services to a relatively large number of users in the form of breakfast, lunch, dinner, or beverages.

Sanitary condition: This means effective systems which help to ensure adequate and appropriate maintenance and cleaning, control pests, manage wastes and monitor the effectiveness of maintenance and sanitation procedures.

Food handler: Any person who directly handles packaged or unpackaged food, food equipment, and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements.

Food hygiene: All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.

Good repair condition: Shall mean the absence of big cracks or detached areas, holes and lack of painting for food preparation areas/kitchens, dining room or service room; and being free of breaks (open seams), corrosion, and cracks and easily cleanable for food utensils and Equipment.

Adequate lighting: Is to mean that a healthy person (without major visual problem) can see or easily identify objects in the room comfortably without straining the eye.

Adequate ventilation: Is to means that a room is free of reasonably disagreeable odor and has at least one open-able window.

Properly managed toilet: This Shall mean when a toilet/latrine was found to be free of litter, tissue/anal cleansing paper, fly access, and other dirty materials like feces or urine around the latrine.

Proper storage: When garbage /refuse is stored in a durable receptacle, has a tight-fitting cover, is moisture-proof and is light to lift and transport.

The magnitude of sanitary conditions (proper versus improper): The overall sanitary conditions were computed by taking a summation of eighteen criteria presented in table 3 (dummy table). Each criterion was given a value of 1 for the presence of sanitary conditions/facility and 0 for the absence. The sum of these conditions will be computed and the mean score of all observations will be used as a cut-off point to categorize establishments. Considering the socio-economic and the importance of public health safety, the cut-off point needs to be at least 75% or 13.5. Food and drinking establishments with higher than mean value were categorized as good/proper sanitary conditions/practice; whereas, those whose score was < 13.5 (75%) were considered as poor sanitary conditions.

5.11. Data management:

To ensure the data quality; data collectors and the supervisor were trained. About how to collect the basic and essential information for this particular study. Pre-testing of the questionnaire & observation checklists was done to test its clarity for both interviewers and respondents on actual data collection. Discussion with all the supervisors and data collectors at the end of each day was performed to get feedback and to solve any problems which should be solved. Data consistency was assured throughout data collection, entry,, and analysis. The data was entered into **Epi-data** and cleaned before transferring to **SPSS version-25** statistical package which was used for data management and analysis.

5.12. Data analysis methods:

Data analysis for objective one was done with **SPSS version-25** statistical package. Data from the structured questionnaire was entered and cleaned using **Epi-data**. Then it is transferred to SPSS version 25 for analysis. For specific objective one, the overall sanitary conditions were computed by taking a summation of eighteen criteria presented in table 3 (dummy table). The sum of these variables was computed and the mean score of all observations was used as a cut-off point to categorize establishments as poor versus good. And it was presented with frequency tables and cross-tabulations to describe the overall sanitary condition of the establishments.

For specific objective two, to determine factors that had a significant association with the dependent variables, some of the independent variables presumed to have in similar studies were used and

Important summary statistics were obtained. Their associations were examined using odds ratio, confidence interval, and p-values, a significance level of 0.05 (i.e. $p<0.05$) was used to determine the significance of associations being examined. Bivariable and then Multivariable logistic regression analyses were conducted to show the predictor variables and to interpret results & describe the associated factors with the dependent variable (sanitary conditions).

5.13. Data quality assurance:

The principal investigator was involved in overall controlling activities of the data collection. Each data collector was filled about an average of 8 questionnaires per day and the actual data collection took 16 days excluding pre-testing. The questionnaire and observation checklists were developed in English and translated to "Amharic" for the data collection purpose and then re-translated back to "English" to check for consistency. The administration was done in the "Amharic" version. The training was given for supervisors and data collectors on how to perform the interviewing. Pre-testing of questionnaires was done on establishments for identifying questions that are not included in the actual study to include and to check the language clarity, consistency of the questionnaire. Corrections of questionnaires that were ambiguous for respondents were done after pre-testing.

5.14. Ethical consideration:

Written ethical clearance was obtained from the Research and Ethical Committee (REC) of the School of Public Health, Addis Ababa University. After the ethical approval of the proposal, First, a formal letter was written to the Yeka sub-city FMHACA from the School of Public Health and then to the food and drinking establishments. Furthermore, during the data collection, informed consent was obtained from each respondent by explaining the objectives of the study in brief. Identifiers like names and codes were not taken in the questionnaire to maintain confidentiality.

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6 Results

Characteristics of the study participants:

The study assessed a total of 409 food and drinking establishments with a full response rate which consists of 54 (13.2%) Hotels, 27 (6.6%) Restaurants, 76 (18.6%) Bar and Restaurants, 30 (7.3%) cafeterias, 19 (4.6%) Café and Restaurants, 77(18.8%) Butchery shop, 64(15.6%) Bakery and pastry, and the remaining 62 (15.2%) Juice houses were covered during the study period. Among the 409 establishments 148 (36.2%) exclusively serve food, 207 (50.1%) serve both food and drink, and 54 (13.2%) of the establishments provide service for food, drink, and bed. In the case of the ownership of the establishment building 94 (23.0%) were privately owned and for the rest 315 (77%) were rented. 282 (68.9%) of the establishments were visited or inspected once or more than once in the last six months. But for the rest of the 127 (31.1%) were not visited/inspected at all. 216 (52.8%) of the establishments were with a service year of 1-5 years. 158 (38.6%) of them in between 6-10 years, 25 (6.1%) had 11-15 years of service, and 10(2.4%) had 16-20 years of service provision. (Table 2) will show the distribution and characteristics of food establishments.

Table2: Distribution of food and drink establishments by type, Kind of service they provide, building ownership, visitation/inspection, and service year. Yeka sub-city, Addis Ababa Ethiopia. January 2021 (n=409).

Characteristics	Number	(%)
Type of establishments		
Hotel	54	13.2%
Restaurant	27	6.6%
Bar and Restaurant	76	18.6%
Cafeteria	30	7.3%
Café and Restaurants	19	4.6%
Bakery/Pastry	77	18.8%
Juice Vendors	64	15.6%
Butchery	62	15.2%
Type of service provide		
Exclusively Food	148	36.2%
Food and Drink	207	50.6%
Food, Drink, and Bed	54	13.2%
Ownership of the building		
Privately owned	94	23.0%
Rented	315	77.0%
Inspected/Visited		
Yes visited	282	68.9%
Not visited	127	31.1%
Service Year of the Estab		
1-5 years	216	52.8%
6-10 years	158	38.6%
11-15 years	25	6.1%
16-20 years	10	2.4%

The socio-demographic characteristics of managers:

Two hundred and five (50.1%) of the establishments were managed by owners, 105 (25.7%) were managed by relatives, and the remaining 99 (24.2%) by employed managers. 274 (67.0%) of the managers were male and 135 (33%) were female. The mean age of managers was 38.22 years with a standard deviation of (±6.89) years. In the case of marital status, 117 (28.6%) were single, 245 (59.9%) were married, 27 (6.6%) of them were divorced, 8 (2%) separated, and the rest 12 (2.9%) were widowed. When we came to educational status 25 (6.1%) of managers have no formal education, 75 (18.3%) were with primary education, and 219 (53.5%) with secondary education, the rest 90 (22.0%) of them were with a diploma and above. The number of managers with food hygiene or related training was 168 (41.1%) and for those without training 241 (58.9%). Table 3 will summarize the socio-demographic characteristics of managers.

Table 3: The socio-demographic characteristics of managers of public food and drinking establishments in Yeka sub-city Addis Ababa Ethiopia January 2021 (n=409).

Characteristics	Frequency	%
Manager of the Establishment		
Owner	205	50.1%
Relatives	105	25.7%
Employed	99	24.2%
Sex of manager		
Male	274	67.0%
Female	135	33.0%
The age range of managers		
18-24 years	9	2.2%
25-30 years	48	11.7%
31-35 years	167	40.8%
36-40 years	117	28.6%
41-45 years	56	13.7%
46 years and above	56	2.9%
Marital status of manager		
Single	117	28.6%
Married	245	59.9%
Divorced	27	6.6%
Separated	8	2.0%
Widowed	12	2.9%
Educational status		
No formal Education	25	6.1%
Primary Education	75	18.3%
Secondary Education	219	53.5%
Diploma and Above	90	22.0%

The physical condition of the kitchen:

Four hundred and five (98.8%) establishments have separate kitchens. In 305 (74.6%) kitchens processing equipment was kept free from dirt and filth. In 398 (97.3%) of the kitchens, there was a piped running water. In 305 (74.6%) kitchens cooked food was handled properly and kept from insects of an open environment. 349 (85.3%) of the kitchen floors were clean at the time of the visit. Hood and chimney were installed for ventilation in 297 (72.6%) of the kitchens.

Among 409 food and drinking establishments, in 284 (69.4%) kitchens insect infestation was observed at the time of visit. In most of the kitchens 379 (92.7%), there were refrigerators with a fixed thermometer reading for the storage of perishable foodstuff but in 30 (7.3%) of the kitchens, it was either malfunctioned or not available.

Store Room: In two hundred fifty (61.1%) of establishments there was a separate storeroom for the storage of non-perishable foodstuff. Since the proper storage of non-perishable foodstuffs will prevent disease-causing MOS to establish a nest and multiply uncontrollably to decay the foodstuff significantly.

Conditions of food handlers and availability of their health examination card:

Three hundred eighty-four (93.9%) of the food handlers (mainly workers in the kitchen & waitress) wear appropriate clean overcoat/Gowon. And also in 164 (40.1%) establishment food handlers/ workers were wearing appropriate hair cover. In some 154 (37.7%) establishments there were health examination cards for food handlers within the last six months from visitation time. The majority 255 (62.3%) there was no examination card during the time of the visit.

Water supply and sanitation facilities:

The source of water for the establishment in 401 (98%) were privately installed from municipality supply, 3 (0.7%) of the sources were from communal distribution and 5 (1.2%) of establishments buy from privately installed pipeline. 331 (80.9%) of establishments had tankers for the storage of water in time of shortage.

Sanitary facilities:

Latrine facility: 404 (98.8%) of the establishments had toilets/latrines. In 274 (67.0%) establishments there were a flush-type toilet and 130 (31.8%) dry pit latrine were observed but as few as 5 (1.2%) establishments were without latrine/ no latrine. In 121 (29.6%) of the toilet, there was the separation of male and female cells in the toilet service line. 371 (90.7%) toilets were clean and comfortable for use at the time of the visit and in 347 (84.8%) toilets there was a hand washing basin provided to be used near the toilet

Hand washing facility and shower services:

A separate hand washing facility was found in 337 (82.4%) establishments and only 287 (70.2%) establishments soap or liquid detergent was provided for hand washing. In 332 (81.2%) there was a shower service available for the workers and 224 (59.7%) establishments had a separate room for clothing, resting, and placing of clothes for workers.

Washing basins for utensils:

There were basins for washing of utensils used for food and drinking, displaying and preparation in 396 (96.8%) of establishments. 209 (51.1%) of the basins were with three (3) compartments, 179 (43.8%) basins were with two (2) compartments. As few as 15 (3.7%) were a single compartment basin. In 286 (69.9%) of establishments utensils and equipment were stored in containers and shelves under conditions that can be protected against contaminations.

Conditions on waste handling and disposal:

Solid waste handling and disposal: Appropriate refuse receptacles were placed in appropriate places which fit to cover and tight were observed in 251 (61.4%) of the establishments. As much as 409 (98%) of establishments were practicing transport of filled refuse receptacles to the final disposal before overfilling.

Liquid waste handling and disposal: Four hundred and one (98%) establishments had an installation of a drainage system for the collection and handling of liquid waste. 398 (97.3%) had a closed type of drainage system that can collect all generated liquid waste and some 11 (2.7%) establishments had an open trench type of drainage system that can collect only a fraction of generated waste.

Overall Sanitary Practice:

Due to the absence of standard grading tools, it is difficult to rate the overall/general sanitary conditions/situations of food and drinking establishments as good/proper and poor/improper. However, this study uses a few determinants/variables to rate the general sanitary conditions of the establishments. These 18 determinants/variables were selected for the characterization of sanitary conditions/practices as proper or improper. The presence of these factors per hygienic provisions was rated as acceptable or else unacceptable based on the cut-off points predetermined to divide/assign as proper or improper at a point of 13.5 (75%). Based on this only 212 (51.8%) establishments were Good/proper and 197 (48.2%) were categorized as poor/improper sanitary conditions/practice. (table 4) will show the sanitary condition/practice of food establishments.

Table 4: The sanitary practice of public food and drinking establishments in Yeka sub-city Addis Ababa Ethiopia. January 2021 (n=409).

The criteria for the sanitary condition:	Numbers	(%)
Provision of a functional washing facility	337	82.4%
Availability of functional latrine	404	98.8%
Properly managed latrine facility	371	90.7%
Availability of container for solid waste storage	251	61.4%
Proper liquid waste disposal	406	99.3%
Availability of 3 compartments for dish/glass washing	209	51.1%
Availability of storeroom for non-perishable foods	250	61.1%
Availability of separate kitchen rooms	404	98.8%
Availability of functional refrigerator	379	92.7%
Availability of piped water supply	401	98.0%
Final disposal of solid waste	401	98.0%
The practicability of proper storage of food utensils	286	69.9%
Proper drinking water storage materials	331	80.9%
Food handlers wearing an appropriate outer garment	384	93.9%
Food handlers wearing appropriate hair cover	164	40.1%
Food handlers health exam card availability in the last 6 months	154	37.7%
Availability of separate dressing room for food handlers	244	59.7%
Insect or rodent infestation not found	125	30.6%

Status of sanitary practice:

Sanitary practices were compared across each stratum by the selected variables mentioned above: As a result, 37 (68.5%) hotels, 14 (51.9%) restaurants, 33 (43.4%) bar & restaurants, 14 (73.7%) cafeteria, 13 (43.3%) café & restaurants, 46 (59.7%) butchery, 32 (50%) bakery/pastry, and at last 23 (37.1%) juice Houses were found in a proper sanitary practice. But the majority of the juice houses 39 (62.9%), cafeteria 17 (56.7%), with 43 (56.6%) bar & restaurants also under improper sanitary practice.

Based on the type of service they provide: 80 (54.1%) exclusively food service providers, 95 (45.9%) both food & drink, with 95 (45.9%) food, drink, and bed service providers were found in proper sanitary practice. Establishments managed by 144 (52.6%) males and 68 (50.4%) females were found proper in overall sanitary practice. And those managed by owners 106 (51.7%), relatives 50 (47.6%) and employed managers 56 (56.6%) were also found in good condition. Establishments reside in privately owned buildings 55 (58.5%) and those residing in a rented building 157 (49%) were in proper sanitary practice.

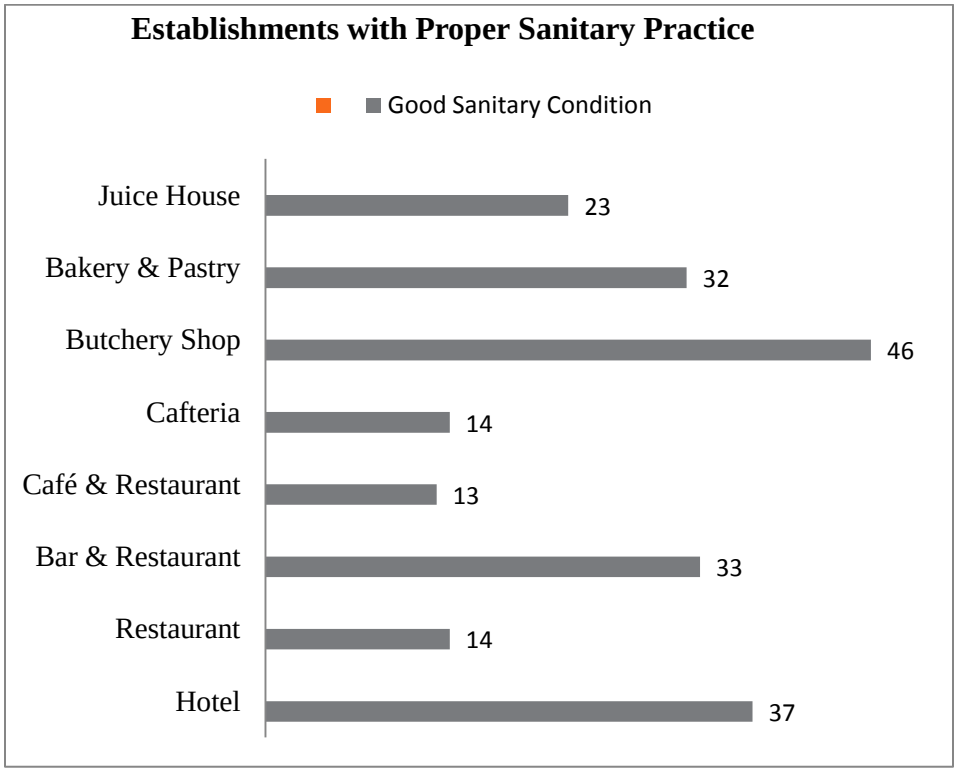

Figure 3: Establishments with proper sanitary practice/status. ..

Table 5: Frequency and percentage of selected variables of establishment with their sanitary practice/status. Yeka sub-city, Addis Ababa Ethiopia. January 2021 (n=409).

	numbers		(%)	
Variables	proper	improper	proper	improper
Service year of the establishment				
1-5 years	114	102	52.8%	47%
6-10 years	76	80	48.7%	51.3%
11- 15 years	13	9	64.0%	36%
16-20 years	4	6	40%	60%
21-25 years	2	0	100%	0%
Types of toilet				
Flush type	174	100	63.5%	36%
Pit latrine	38	92	29.2%	70.8%
No toilet	0	5	0%	0%
Basins compartment				
4 compartment	6	0	100%	0%
3 compartment	145	64	69.4%	30.6%
2 compartment	60	119	33.5%	66.5%
1 compartment	1	14	6.7%	93.3%
Separate hand washing facility				
Yes	202	135	59.9%	40.1%
No	10	62	13.9%	86.1%
Availability of shower service				
Yes	188	144	56.6%	43.4%
No	24	53	31.2%	68.8%

Toilet facility: The majority 404 (98.2.6%) of the establishments had toilet facilities. However, Only 212 (52.5%) was in proper sanitary practice.

Water supply:

Four hundred and one (98%) of the establishments installed privately-owned municipal piped water supply, 8 (2%) of the establishments having access to Communal distribution water supply. Among the 409 food catering establishments, 398 (97.3%) of the kitchens had access to running tap water inside the facility for food preparation and utensil washing, and only 212 (52.5%) kitchens had a proper sanitary practice.

Solid waste disposal:

Two hundred fifty-one (61.4%) of establishments had appropriate solid waste storage containers/receptacles placed in an appropriate place, among these 170 (67.7%) did make it to a good sanitary status. The majority of 401 (98%) establishments transport the receptacles to the final disposal.

Lavatory facility:

Showers for food handlers were available in 332 (81.2%) but only 188 (56.6%) establishments had a proper sanitary practice. Hand washing basins for clients fixed with running tap water in 337 (82.4%) establishments but only 202 (59.9%) were under a proper sanitary practice. Detergents like soaps were available for clients in 287(70.2%) of the lavatory facilities.

Washing basin facility:

For food utensils and equipment among establishments, which serve various types of meals, 209 (51.1%) had three-compartment conventional types of sinks fixed with running tap water for the dishwashing facility. Of these establishments, 145 (69.4%) were categorized with proper sanitary practice. 6 (1.24%) of the establishments were used a four-compartment dishwashing facility. And all of them practically using cold water with detergent for sanitizing their dishes.

Factors associated with sanitary conditions of establishments:

Bivariate analysis:

Educational status of the manager, Marital status of the manager, The manager of the establishment, Owner of the establishment building, Availability of kitchen, and all other variables were

presumed to have a significant association with the dependent variable. But a Bivariable analysis of factors associated with the overall sanitary practice of food and drinking establishments showed a significant association only for variables in the following table (Table 6).

The regulatory inspection, training on food hygiene of managers, was significantly associated with the dependent variable/ sanitary practice of food and drinking establishments. With a bivariate logistic regression of food hygiene training of managers (COR= 4.668, 95% CI: 3.036-7.177) and regular inspection of food and drinking establishments (COR= 3.523, at 95% CI: 2.123-5.846).

To determine the significant association of the variables (Table 6) with the dependent variable in a multivariable logistic regression, the variables only with a significant association from table 6 will be taken under consideration.

Table 6: Bivariate analysis of factors associated with the overall sanitary conditions of food and drinking establishments in Yeka Sub-City., Addis Ababa, Ethiopia. January 2021 (n=409).

Variables	Sanitary practice		Crude odd's ratio	95% confidence interval
	proper	improper		
Educational status of owners/managers.				
No formal education	14	11	0.54	0.22-1.354
Primary education	33	42	0.33*	0.177-0.639
Secondary education	102	117	0.37*	0.221-0.630
Diploma and above	63	27	1.00	
Marital status of owner/mgrs.				
Single	53	64	0.82	0.252- 2.719
Married	135	110	1.22	0. 385- 3.912
Divorced	13	14	0.92	0.238- 3.619
Separated	5	3	1.66	0.269- 10.334
Widowed	6	6	1.00	
The manager of the establishment				
Owner	106	99	0.82	0.567- 1.332
Relative	50	55	0.69	0.402- 1.212
employed	56	43	1.00	
Owner of the establishment building				
Private	55	39	1.41	0.891- 2.262
Rented	157	158	1.00	
Proper handling of cooked food in the kitchen.	189	103	7.49*	4.480- 12.555
Yes	23	94	1.00	
No				
Is there a hood & chimney?				
Yes	174	123	2.75*	1.749-4.339
No	38	74	1.00	
Is there insect infestation?				
Yes	175	109	3.81*	2.429- 6.003
No	37	88	1.00	
Storeroom for non-perishable foodstuff.	180	32	10.20*	6.31- 16.426
Yes	70	127	1.00	
No				
Do food handlers wear hair Cover?	135	29	10.15*	6.263- 16.470
Yes	77	168	1.00	
No				
Do food-handlers have medical certificate?				
Yes	115	39	4.80*	3.086- 7.477
No	97	158	1.00	

Is there separate hand washing facility after toilet use?				
Yes	202	145	7.24*	3.5635- 14.729
No	10	52	1.00	
Are there 3-compartment basins?				
Yes	145	64	4.49*	2.968- 6.815
No	67	133	1.00	
Does refuse receptacles placed in appropriate places?				
Yes	170	81	5.79*	3.729- 9.011
No	42	116	1.00	
Separate hand washing facility provided?				
Yes	202	135	9.27*	4.595- 18.729
No	10	62	1.00	
Training on food hygiene				
Yes	123	45	4.66*	3.036- 7.177
No	89	152	1.00	
Regular inspection				
Yes	186	132	3.52*	2.123- 5.846
No	26	65	1.00	

Note: 1.00 shows the reference category; whereas, * shows variables/categories with the significant association at $P < 0.05$.

Multivariable logistic analysis:

And with a multivariable logistic regression assuming p-value < 0.05 at 95% Confidence Interval. The odds of having proper sanitary practice in food establishments with food hygiene trained managers was 2.39 times that of not having trained managers. (AOR = 2.397, at 95% CI: 1.353-4.248). On the other hand, the multivariable analysis of regular inspection of establishments one or more than one inspection in the last six months was not significantly associated with the dependent variable. (AOR= 1.640, at 95% CI: 0.856-3.143). The odds of having proper sanitary practice in food establishments that handled cooked food properly in the kitchen kept it from insect & open environment were 2.827 times to that of not properly handling. (AOR= 2.827, 95% CI: 1.487-5.377).

The odds of having proper sanitary practice in food establishments that use a standard 3-compartment dish/glass washing facility were 4.75 times that of not using. (AOR= 4.75, 95% CI: 2.687-8.400). The odds of having proper sanitary practice in food establishments with a separate hand washing facility present were 10.57 times that of not having it. (AOR= 10.57, 95% CI: 4.463- 25.068).

The odds of having proper sanitary practice in food establishments that provide appropriate refuse receptacles in an appropriate place with a tight fit to cover were 3.52 times that of not placing appropriately. (AOR= 3.527, 95% CI: 1.997- 6.230). And finally, the odds of having proper sanitary practice in food establishments that had a health examination certificate/card in the last six months were 5.38 times that of not having it. (AOR= 5.38, 95% CI: 2.973-9.752).

Table 7: Multivariable analysis of factors associated with the overall sanitary practice of food and drinking establishments in Yeka sub-city., Addis Ababa, Ethiopia. January 2021 (n=409).

Variables	Sanitary condition		Adjusted odd's ratio	95% confidence interval
	Proper	Improper		
Training on food hygiene				
Yes (exposed)	123	45	2.39*	(1.353-4.248)
No (non-exposed)	89	152	1.00	
Regular inspection				
Yes (exposed)	186	132	1.60	(0.856-3.143)
No (unexposed)	26	65	1.00	
Does cooked food handle properly in the kitchen? Kept from insect & open environment.				
Yes (exposed)	189	103	2.82*	(1.487-5.377)
No (unexposed)	23	94	1.00	
Availability of 3-compartment dish/glass washing basin				
Yes (exposed)	145	64	4.75*	(2.687-8.400)
No (unexposed)	67	133	1.00	
Food handlers Medical certificate available				
Yes (exposed)	115	39	5.38*	(2.973-9.752)
No (unexposed)	97	158	1.00	
Appropriate receptacles placed in the appropriate place	170	81	3.52*	(1.997-6.2380)
Yes (expose)	42	116	1.00	
No (unexposed)				
Is there a separate hand washing facility present?	202	135	10.55*	(4.463- 25.068)
Yes (exposed)	10	62	1.00	
No (unexposed)				

Note: 1.00 shows the reference category; whereas, * shows variables/categories with the significant association at $P < 0.05$.

7 Discussions

This study indicated that 51.8% of food establishments in yeka sub-city were in a relatively proper sanitary practice. However, 48.2% of food and drinking establishments were conducting improper sanitary practices. This means that improper practices in food establishments were observed in a high proportion which can be a significant source of acute & chronic food-borne diseases. Which is strong morbidity as well as mortality reason in the public health of this country. This finding is similar to the study done in Adwa(8) which was 53.3% poor/improper and that of Addis Ababa(6) Arada Sub-City which was 58.8% poor/improper since both cities are relatively in a similar socio-economic, as well as socio-cultural status similarity, shall be expected. And it is different from comparable studies done in Bahirdar(21) 78.8% poor/improper, Woldia(4) 83.2% poor/improper, and from Mekele(13) which was 82.9% poor/improper. These three towns were in a much lower or different socio-economic and socio-cultural status compared to Addis Ababa the observed difference might be due to this fact.

Some of the key findings in this cross-sectional study were training of managers on food hygiene was strongly associated, using a standard 3-compartment dish/glass washing basin, and putting appropriate refuse receptacle at the appropriate place with the overall sanitary conditions/practice of establishments.

And training of managers on food hygiene and related issues were significantly associated variables with (AOR=5.007, 95% CI: 3.188-7.863). Which is higher than the findings of studies conducted in Addis Ababa (6), in Adwa (9). It could be concluded that the overall sanitary status of the establishments in the study area was relatively unhygienic, and most studies showed that managers' knowledge and training about hygiene and sanitation have a direct influence on the overall sanitary conditions of establishments. It will give them the adherence to follow and improve the sanitary status of their establishments.

The availability and utilization of a three-compartment dish/glass washing facility is only 209 (51.1%). Which will have a substantial impact on the overall sanitary practice of food and drinking establishments? It is comparable with a similar study done in Mekele town(13) which was 46%. And it was much higher than the study done in Addis Ababa Arada sub-city (6) which was 7.2%, Woldya town (4) which was 1.7%, and in and Adwa (9) (47.1%). One of the most widely used & accepted standard methods of food utensils washing is the three-compartment washing basins which can be used to wash,

rinse and sanitize food utensils and equipment (6). inappropriate dish-washing practices contribute to the transmission of various diseases**.**

Establishments with the provision of a functional hand washing facility were 337 (82.4%). This was similar to the study done in Addis Ababa Arada sub-city (6) which was 83.5% since both were in a comparable socio-economic and socio-cultural status with each other such similarities were expected.

For instance, 164 (40.1%) of the establishments, food handlers/workers were not wearing appropriate hair covers which was a considerable source of unhygienic food handlers practice that can create a favorable environment for micro-organisms (MOS) and insect infestation. It was similar to the study done in the Addis Ababa Arada sub-city(6).

There were only 255 (62.3%) establishments with health examination cards for their food handlers/workers within the last six months before the visitation time. This indicates that there is a notable gap in the proper supportive inspection and a lack of important knowledge on the overall sanitary practice.

The other key findings of this study were that appropriate refuse receptacle were placed in an appropriate place that will fit to cover tight were observed only in 251 (61.4%) of the establishments. Which was much lower than the comparable studies done in Addis Ababa Arada Sub-City(6) which was 97% and also in Mekele(13) which was 97.1%. This difference might be due to the gap in the proper control & supervision. This will demonstrate that there will be a considerable source of MOS in the establishments as a result of inappropriate practice and handling of solid waste.

The study revealed that amid 404 establishments that had kitchens, only 212 (52.5%) of food establishments were rated as proper sanitary conditions/practice at the time of visit. And among 398 establishments that had running water in their kitchen, only 210 (52.8%) were found in a proper sanitary condition/practice. Out of 349 establishments with their kitchen floor clean at the time of visit only 187 (53.6%) were under proper sanitary condition/practice. There were 305 (74.6%) availability in the practice of processing equipment cleanliness kept, free from dirt and filth. 297 (72.6%) of establishments with the kitchen had hood and chimney installed for ventilation. However, only 174 (58.6%) of them were found to have good sanitary conditions at all.

Latrine availability and accessibility with separated cells for males and females: a vast majority of establishments 404 (98.8%) had toilet facilities. This finding is relatively consistent with the findings in Mekele (97%), and Adwa (98.4%) (8) however higher than Addis Ababa (92.2%) and Bahir-Dar (93.2%)((13)(8)(12)). Unsanitary and soiled toilets create favorable breeding environments for insects and

rodents which will carry pathogenic micro-organisms & intestinal parasites resulting in the contamination of food and utensils equipment. This in turn will result in the occurrence of food-borne diseases ((3), (13)).

On the contrary to the above key findings, this study also had its meaningful outcomes which in particular 401 (98%) of the establishments had an installation of a liquid waste drainage system for the collection and handling of liquid waste. which is remarkable considering other similar studies. Among these 398 (97.3%) had a closed type of drainage system which is also a highly recommended type of liquid waste handling system. It can also be considered as affirmative to have 405 (98%) of the establishments with a separate kitchen. It is also good to know that 401 (98%) of the establishments had a privately installed source of water from municipality supply. These can be considered as a strong outcome for the overall sanitary condition of food and drinking establishments.

Altogether, in 384 (93.9%) of the establishments, food handlers wear appropriate clean overcoat/Gowon during practice and throughout their shift. Which demonstrates the professional and hygienic practice of food handlers? Another good practice to be addressed in this study was the availability of a separate hand washing facility which was found in 337 (82.4%) of the establishments, out of which the majority 287 (70.2%) had soap and some kind of liquid detergent that can be taken as a highly competitive result.

In this study inspection of food and drinking establishments once or more than once in the last six months was not much significant. This implies that the sanitary supervision visits of catering establishments supported by education can improve and sustain the sanitary complaint of catering establishments. Studies conducted in Addis Ababa(6), Mekele(13), and Zeway(14) also showed that sanitary inspection had a positive impact on the physical conditions of the catering establishments. However, in the study area due to the global pandemic of the covid-19, the sanitary inspection was done irregularly and there were emergency lockdown and economic depression also. A major reason for the sanitary inspection of food & drink establishments was the prevention of communicable food-borne diseases. However, routine or frequent inspection of food and drinking establishments alone will not be adequate, to ensure the maintenance of proper sanitation practice; inspection must be supplemented by education, motivation, persuasion, and legal action.

8 Strength and Limitation of the study

Strengths: This cross-sectional study was done in one of the most populated areas in Addis Ababa. Using a clear sampling frame, inclusion and exclusion criteria, and with a stratified simple random sampling technique.

Using a pre-tested structured questionnaire and observation checklist for detailed assessments of the sanitary status of the establishments will reduce respondent bias.

Data were collected by environmental health professionals/sanitarians. And data quality control was done in every step for language clarity, consistency, and corrections of the questionnaire.

Data analysis was done with the latest SPSS version 25. And appropriate ethical clearance was obtained.

Limitation/weakness: Since the study was cross-sectional it only shows the sanitary conditions of establishments at the time of the assessment which will vary with time and circumstances. There will be observation bias and it will not show a cause and effect relationship.

Due to the lack of standard criteria for grading sanitary conditions of establishments, adopted criteria from similar studies were used.

Regarding food handlers, detailed socio-demographic analysis and bacteriological tests of utensils swabs were not done due to limited resources.

9 Conclusions

Based on the findings of the study it can be concluded that The sanitary condition/practice of food establishments in the study area was found unhygienic and relatively improper. Sub-standard food establishments were found in greater proportion. And multiple causal factors were considered to be present for such unsanitary/improper practice. However, in this particular study training of managers, inappropriate utilization and placement of refuse receptacles, the improper practice of standard 3-compartment dish/glass washing basins with its facility, and the availability of bi-annual health examination certificate of food handlers were found significantly associated with the overall sanitary practice of food establishments.

The poor personal hygienic practice of food handlers' (hair cover and Gowon) with unavailability and practice of a bi-annual health examination card should be inspected regularly to improve the overall sanitary conditions of catering establishments. Regular inspections were found less significantly associated with the sanitary practice of food establishments.

The absence of trained managers was a significant factor associated with poor/improper sanitary practices/conditions of establishments. This shows the importance of trained managers in maintaining the gap of adherence for proper hygiene and sanitation practice by establishments.

There is an association between improper sanitary practices and the absence of inspection visits. Regular controlling mechanisms of establishments supported by health education and awareness creation will be needed to maintain the sanitary status of establishments. Emphasis should be given to the physical and structural design of the houses and the availability of sanitary facilities.

10 Recommendations

Based on the findings of this assessment, the following recommendations were addressed.

To Yeka sub-city FMHACA Specifically, this study identified the following sanitary deficiencies. Which should be addressed during a proper supportive inspection and through short-term food hygiene and sanitation training organized by the FMHACA?

- Inappropriate practice and unavailability of solid waste receptacles.
- Lack of standard 3-compartment dish-washing facility.
- The poor personal hygienic practice of food handlers'(hair cover and Gowon) with health examination cards should be inspected regularly.
- Poor practice and unavailability of restroom and shower service for food handlers should be mandatory.
- Lack of Proper training on food hygiene and sanitation for managers put a considerable effect on the poor sanitary conditions of these establishments.
- Inconsistent coverage of sanitary inspection should be managed.

The appropriate regular inspection shall be given by Sub-City and Woreda FMHACA to the gratification of food establishments to acceptable sanitary conditions.

Training about the requirements, the proclamation and other laws and directives of food catering establishments for food establishment owners, regulatory body and other relevant stakeholders shall be given.

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12. Annexes

12.1 Annex I: Principal investigator: Gezahegne Mulatu

Participant information sheet and informed consent

Good morning/afternoon dear participant! My name is ……. I am working as a data collector for the study being conducted at Yeka sub-city on food and drinking establishments by Gezahegne Mulatu, who is studying for his Master of Public Health Degree at Addis Ababa University, School of Public Health. I kindly request you to give me your attention to explain to you the study and inform you being selected as one of the study participants.

The study title: Study on "Assessment of the sanitary condition of public food and drinking establishments in Yeka sub-city Addis Ababa"

Purpose of the study: The findings of this study will help to provide a clear description of the sanitary condition of the mass catering establishments and to provide systematic information for local policymakers on community health.

Procedure and duration: Interview based semi-structured questioner and observation checklist will be used. It will take 25-30munites. The questioner will be interviewed after taking informed consent from Aug-Sept 2020.

Risks and benefits: The risk of participating in this study is very minimal, but only takes 25-30 minutes from your time. There would not be direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners.

Confidentiality: The information you provide for us will be confidential. There will be no information that will identify you in particular. The findings of the study will be general for the study community and will not reflect anything particular of an individual person. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the study.

Rights: Participation in this study is fully voluntary. You have the right to declare to participate or not in the study. If you decide to participate, you have the right to withdraw from the study at any time and this will not label you for any loss of benefits that you otherwise are entitled. You do not have to answer any question that you do not want to answer.

Contact address: If there are any questions or enquires any time about the study or the procedure, please contact through the following address:

Principal investigator: Gezahegne Mulatu

Mobile number: - +251910906183.

Email:-gez_mul@yahoo.com

Adviser: Abera Kumie: aberakumie2@yahoo.com; +251911882912

12.2 Annex II

12.2.1 Declaration of informed voluntary consent:

I have read the participant information sheet/was read to me. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore; I declare my voluntary consent to participate in this study with my initials (signature) as indicated below.

Name of participant: _____ Signature of participant: _____.
Name of Data collector: _____ Signature of Data collector_____.

Result of the interview:
1. Completed
2. Partially completed
3. The interviewee refused
4. Others----------

12.3 Annex III

Questionnaire:

Instructions: The questionnaires have an interview and observational types. For interview questions with a pre-coded response, only read (ask) as it is written and record the response of the respondents and for observational types go observe and test the practical status of each of the requested items and record your observations exactly.

1. General information

Sr.no	Questions	Response	Code
101	Types of establishment	1. Hotel 2.Restaurant 3.Bar & Restaurant 4.Cafterias 5.cafe & restaurant 6. Butcher shop7. Bakery /pastry 8. Juice house	/__/
102	Type of services the establishment gives	1. Exclusively food 2.Exclusiverly drinks 3.Food &drink 4.Bed services in addition to food or drink 5.Others (specify_)	/__/
103	Sex of manager/owner	1.Male 2.Female	
104	Age of manager/owner	1.18-24 2.25-34 3.35-44 4.45-54 5.>=55	/__/
105	Educational/ literacy/ status of manager/owner	1.No formal education 2.Literate____grade	/__/
106	Marital status of manager/owner	1. Single 2.Married 3.Divorced 4.Widowided 5.Separated	/__/
107	Manager of the establishment	1.Owner 2.Relatives 3.Employed	
108	Owner ship of the establishment building	1.Private 2.Rented	/__/
109	Year of services of the establishment	1.6months-2year 2.3-5 year 3.6-10years 4. 11 and above	
110	Is there Food Hygiene training taken by the manager?	1. Yes 2. No	
111	If visited/inspected in the last 6 months by the authorized body	1. Visited 2. Not visited	

112	If licensed	1. It gives service for which it is licensed 2. It gives other services exclusively.	3. It gives other services in addition to its license.	
2. Observation checklist on the Condition of the kitchen for the establishment which prepares food for services.				
201	Does the establishment have a separate room for kitchen?		1.Yes 2.No	/_/
202	Is processing equipment cleanness kept and free from visible dirt and filth?	1. Yes, 2. No		/_/
203	Is there a connection between running water in the kitchen for the preparation and washing of equipment?		1.Yes, 2. No	/_/
204	Does cooked food handled properly in the kitchen/ kept in sealed conditions to prevent access from insect and open environment?		1.Yes 2.No	/_/
205	Is the floor clean at the time of the visit?		1. Yes, 2. No	/_/
2.2 Ventilation of the kitchen, Insect and vermin protection				
206	Are hood and chimney installed for ventilation?		1. Yes, 2. No	/_/
207	Is any insect infestation in kitchen Observed at the time of visit?	1.No 2.Yes, if yes type 1.Flies 2.Rate 3. Cockroach 4. Other(specify__)		/_/

3.Observation checklist for storeroom and refrigerators			
301	Is a refrigerator available for the storage of perishable foods with a fixed thermometer reading?	1.Yes 2.No	/_/
302	Does the establishment have a separate storeroom?	1.Yes2.No	/_/

4. Observational type of practice related question for selected food handler			
401	Does the worker wear appropriate clean overcoat?	1. Yes, 2. No	/_/
402	Does the worker wear appropriate clean hair cover?	1.Yes 2.No	/_/
403	Is there a health exam card in the last 6 months	1. Yes, there is 2. No, there is no	/_/

5. Observation checklist on sanitary facilities and water supply 5.1 **water supply**			
501	source of the water for the establishment	1. Privately instilled from municipal supply 2.From communal distribution 3. Buy from privately instilled pipe 4.Others specify____	/_/
502	Is there any tanker for the storage of water for the time of shortage?	1.Yes 2.No	/_/
5.2 Toilet			
503	Types of toilet	1. Flush type 2.Dy pit latrine 3. Other specify (__) 4.No latrine	/_/
504	Separation for males and females?	1. Yes, 2. No	/_/
505	Is the latrine clean &comfortable to use at the time of the visit?	1.Yes 2.No	
506	Does the hand wash basin provide to use after the toilet near the toilet?	1.Yes2 No	/_/
5.3 Hand washing facility for dining			
507	Is a separate hand washing facility present?	1.Yes, 2. No	/_/
508	Is soap provided for hand washing?	1.Yes 2.No	/_/
5.4 Shower services and Separate dressing room for employees			
509	Is there shower availability for the workers?	1. Yes 2.No	/_/
510	Is there a separate room for clothing, resting and placing of clothes for workers?	1.Yes 2.No	/_/
6. Observation checklist on washing basins/facility for utensils and conditions of equipment			
601.	Is there basin for washing of utensils used for food and drinking displaying and preparation?	1.Yes 2.No	/_/
602	If present, how much is its compartment? Write the number of compartment.	_____	/_/
603	Do utensils and equipment stored in containers, on shelves under conditions that can protect against contaminations?	1.Yes 2.No	/_/
7. observation checklist on Waste handling and disposal 7.1 solid waste handling and disposal			
701	Do appropriate refuse receptacles placed in appropriate place? Which fit to cover and tight?	1.Yes 2.No	/_/

702	Does the refuse transport to final disposal before over filing?		1.Yes 2.No	/_/
703	Where does the refuse Dispose at the final?	1. Supplied to municipal service 2. Burn at the site (open burn) 3. Disposed on street 4.Thrown into rivers 5.Other specify(___)		/_/
	7.2 Liquid waste collection and disposal system			
704	Is there installation of a drainage system for the collection and handling of liquid waste?		1.Yes 2.No	/_/
705	If the drainage system present what type?	1. A closed type that can collect all generated liquid waste 2.Open trench that can collect a fraction of generated waste 3. Other specify ----------		/_/

Remarkes_____
_____

12.4 Annex IV

Dummy Tables:

Table 2: Characteristics of public food and drink establishments by the type of services provided and service year in Yeka sub-city Addis Ababa Ethiopia. January 2021 (n=409).

Characteristics	Number	(%)
Type of establishments		
Hotel	54	13.2%
Restaurant	27	6.6%
Bar and Restaurant	76	18.6%
Cafeteria	30	7.3%
Café and Restaurants	19	4.6%
Bakery/Pastry	77	18.8%
Juice Vendors	64	15.6%
Butchery	62	15.2%
Type of service provide		
Exclusively Food	148	36.2%
Food and Drink	207	50.6%
Food, Drink and Bed	54	13.2%
Ownership of the building		
Privately owned	94	23.0%
Rented	315	77.0%
Inspected/Visited		
Yes visited	282	68.9%
Not visited	127	31.1%
Service Year of the Esta		
1-5 years	216	52.8%
6-10 years	158	38.6%
11-15 years	25	6.1%
16-20 years	10	2.4%

Table 3: The socio-demographic characteristics of managers of public food and drinking establishments in Yeka sub-city Addis Ababa Ethiopia. January 2021 (n=409).

Characteristics	Frequency	%
Manager of the Establishment		
Owner	205	50.1%
Relatives	105	25.7%
Employed	99	24.2%
Sex of manager		
Male	274	67.0%
Female	135	33.0%
The age range of managers		
18-24 years	9	2.2%
25-30 years	48	11.7%
31-35 years	167	40.8%
36-40 years	117	28.6%
41-45 years	56	13.7%
46 years and above	56	2.9%
Marital status of manager		
Single	117	28.6%
Married	245	59.9%
Divorced	27	6.6%
Separated	8	2.0%
Widowed	12	2.9%
Educational status		
No formal Education	25	6.1%
Primary Education	75	18.3%
Secondary Education	219	53.5%
Diploma and Above	90	22.0%

Table 4: The sanitary condition of public food and drinking establishments in Yeka sub-city Addis Ababa Ethiopia. January 2021 (n=409).

The criteria for the sanitary condition:	Numbers	(%)
Provision of a functional washing facility	337	82.4%
Availability of functional latrine	404	98.8%
Properly managed latrine facility	371	90.7%
Availability of container for solid waste storage	251	61.4%
Proper liquid waste disposal	406	99.3%
Availability of 3 compartments for dish/glass washing	209	51.1%
Availability of storeroom for non-perishable foods	250	61.1%
Availability of separate kitchen rooms	404	98.8%
Availability of functional refrigerator	379	92.7%
Availability of piped water supply	401	98.0%
Final disposal of solid waste	401	98.0%
The practicability of proper storage of food utensils	286	69.9%
Proper drinking water storage materials	331	80.9%
Food handlers wearing an appropriate outer garment	384	93.9%
Food handlers wearing appropriate hair cover	164	40.1%
Food handlers health exam card availability in the last 6 months	154	37.7%
Availability of separate dressing room for food handlers	244	59.7%
Insect or rodent infestation not found	125	30.6%

Table 8: Factors associated with the sanitary condition of public food and drinking establishments in Yeka sub-city Addis Ababa Ethiopia. January 2021 (n=409).

Variables	Sanitary condition		Adjusted odd's ratio	95% confidence interval
	Proper	Improper		
Training on food hygiene				
Yes	123	45	2.39*	(1.353- 4,248)
No	89	152	1.00	
Availability of 3-compartment dish/glass washing basin				
Yes	145	64	4.75*	(2.687- 8.400)
No	67	133	1.00	
Food handlers Medical certificate available				
Yes	115	39	5.38*	(2.973-9.752)
No	97	158	1.00	
Appropriate receptacles placed in appropriate place				
Yes	170	81	3.52*	(1.997- 6.230)
No	42	116	1.00	

Note: 1.00 shows the reference category; whereas, * shows variables/categories with the significant association at $P < 0.05$.

12.5 የአማርኛ ቋንቋ የግንዛቤና የፈቃደኝነት መጠየቂያ ቅጽ

ጥናት አድራጊ፡- ገዛህኝ ሙላቱ

ርዕስ፡- በየካ ክ/ከ ውስጥ ለህዝብ የምግብና መጠጥ አገልግሎት እየሰጡ የሚገኙ ተቐማት ላይ ያለውን አጠቃላይ የግልና የተቐመ· የንጽህና ሁኔታ እንዲሁም በምግብና መጠጥ ንጽህና ላይ ያለውን ተጽእኖ ለመረዳትና ተጉዋዳኝ ንክንያቶችን ለመለየት፡፡

ጤና ይስጥልኝ! ስሜ ..... እኔ ዛሬ እዚህ የተገኘሁት የአዲስ አበባ ዩኒቨርስቲ የህብረተሰብ ጤና ተማሪ የሆነውን ገዛህኝ ሙላቱን በመወከል ሲሆን ጥናቱም በየካ ክፍለ ከተማ ውስጥ ከላይ በተጠቀሰዉ ርዕስ ላይ ጥናት እያደረገ ሲሆን ይህም የማስተርስ ዲግሪውን ለማግኘት የሚጠቅመው ነው፡፡ ከዚህ በታች ጥናቱ ላይ ለመሳተፍ ከመወሰኖት በፊት የጥናቱን አላማ ፣ ጥናቱ ላይ በመሳተፍ የሚያገኙት ጥቅም እና ጉዳት እንዲሁም ደግሞ ከእርሶ የሚጠበቀውን እገልጽሎታለሁ፡፡

አላማ፡- የዚህ ጥናት ዋና አላማ ለህዝብ የምግብና መጠጥ አገልግሎት በመስጠት ላይ የሚገኙ ተቐማት ላይ ያለውን አጠቃላይ የግልና የተቐመ· የንጽህና ሁኔታ እና በምግብና መጠጥ ንጽህና ላይ ያለውን ተጽእኖ ለመረዳት ሲሆን ከርሶ የተወሰነ መረጃ ከመውሰድ ውጭ ጥናቱ በተሳታፊዎች ላይ የሚያደርሰው ምንም አይነት ጉዳት የለም፡፡

ቅደም ተከተል ፡-የስምምነት ወረቀቱን ከፈረሙ በኃላ መረጃ ሰብሳቢዉ አግባብ ያላቸዉን ጥያቄዎችች፤ የተዋቀረ መጠይቅ በመጠቀም ፊት ለፊት ይጠይቆታል ምላሽዎንም በቃለ መጠይቁ ላይ ያሰፍራል፡፡ቃለ መጠይቁ 25-30 ደቂቃ ይወስዳል፡፡ ከጥር -ሚያዝያ 2020 በመጠይቅ የሚቀጥል ይሆናል፡፡

ለተጠያቂው የሚሰጠው ጥቅም ፡- ለተጠያቂው ቀጥተኛ ጥቅም ላይኖረው ይችላል፡፡ ነገር ግን ጥናቱ ከተካሄደ በኃላ የጥናቱ ውጤት የተሳታፊዎቹን ከምግብና መጠጥ ንጽህና ጋር በተያያዘ ያለቸውን እውቀት እንዲሁም በምግብ ወለድ በሽታዎች ላይና መተላለፊያ መንገዶቹን በተመለከተያላቸውን ግንዛቤ ለማወቅ ይረዳል፡፡ይህም ህግ አዉጪዎች እና የተለያዩ በሕብረተሰብ ጤና ላይ የሚሰሩ ግብረ ሰናይ ድርጅቶች በምግብ ወለድ በሽታዎችንና ወረርሽኞችን ለመከላከል ብሎም እርምጃ እንዲወስዱ ይረዳል፡፡ለሰጡት መረጃ ምንም አይነት የገንዘብ ክፍያ አይከፈሎትም ነገር ግን ማንኛዉም የጥናቱ ተሳታፊ ከምግብና መጠጥ ንጽህና እንዲሁም ከምግብ ወለድ በሽታዎች ጋር ተያይዞ ላለዉ ጥያቄ ትምህርት ይሰጣል፡፡ የጥናቱ ዉጤት ለሚመለከተዉ ክፍል ይሰራጫል፡፡

ጥናቱ ሊያስከትል የሚችለዉ ጉዳት ፡- በጥናቱ ላይ መሳተፍ ምንም አይነት ጉዳት አያስከትልም፡፡ ነገር ግን ጥያቄዎችን ሲመልሱ ሰዓቶትን ልንወስድ እንችላለን፡፡

የተጠያቂው መብቶች፡- የእርሶ ተሳትፎ ፈፅሞ በፍላጎት ላይ የተመሰረተ ነዉ፡፡ አንድ ተሳታፊ ጥናቱ ላይ መሳተፍም አለመሳተፍም ይችላል፡፡ ጥናቱ ላይ መሳተፍ ባይፈልጉ ምንም አይነት ጥቅም አይከለከሉም፡፡ ማንኛዉም ያልተረዱት ጥያቄ ካለ መረጃ ሰብሳቢዉን መጠየቅ ይችላሉ፡፡

ምስጢራዊነት፡- ሁለም መረጃ ምስጢራዊነቱ የተጠበቀ ሲሆን የእርሶን ስም ባለ መፃፍ ም ስጢራዊነቱን ለመጠበቅ የምስጢር ቁጥር የምንጠቀም ይሆናል፡፡ በዚህ ጥናት ላይ ለመሳተፍ ፍቃደኛ ነዎት ?

1. አይደለሁም …….
2. አዎ ……

ስምምነት : ከላይ የጥናቱ አላማ፣ ጥቅሙ፣ ጉዳቱ፣ እንዲሁም ሚስጥራዊነቱ በሚገባኝ እና በምረዳዉ ቋንቋ ተገልጾልኛል፡፡በተጨማሪም በጥናቱ ላይ ለመሳተፍ ብስማማም እንኳን ምንም አይነት ማብራሪያ መስጠት ሳያስፈልገኝ በፈለኩት ጊዜ አቋርጬ መዉጣ እችላለሁ፡፡ በዚህ ጥናት ላይ ተሳትፎዬ ፈፅሞ በፍላጎት ላይ የተመሰረተ ነዉ፡፡ በጥናቱ ላይ ላሉኝ ጥያቄዎች በተሰጠኝ አድራሻ መጠየቅ እንደምችል ተነግሮኛል::

በዚህ ጥናት ላይ ለመሳተፍ ተስማምቻለሁ፡፡

ፊርማ ቀን (መረጃ ሰብሳቢ) ……..

ፊርማ ቀን (ጥናት አድራጊ)……..

ለሚኖርዎት ጥያቄ የሚጠቀሙት አድራሻ እና የጥናት አድራጊው መረጃ

የጥናት አድራጊው ስም፡ ገዛህኝ ሙላቱ ስልክ ቁጥር፡ 0910906183

ኢ-ሜይል ፡ gez_mul@yahoo.com

የጠያቂው ስም እና ፊርማ._____

የተጠየቀበት ቀን (በኢትዮጵያ አቆጣጠር) -------/----------/--------

የጥናቱ ውጤት

1. ተጠናቋል ……. 2. መጠየቅ አልፈለጉም……

3. በከፊል የተጠናቀቀ ……. 4.ሌላ……በጥናት አድራጊው ተረጋግጧል ስም ---------- ፊርማ ---------- ቀን _____

12.6 መጠይቅ በአማርኛ

ተ/ቁ	ጥያቄዎች		መልስ	ኮድ
101	የተቐመ አይነት/	1. ሆቴል 2.ሬስቶራንት 3.ባር እና ሬስቶራንት 4.ካፍቴርያ 5.ጭማቂ ቤት 6 ስጋ ቤት7. የዳቦና ኬክ ቤት 8.ካፌና ሬስቶራንት		/__/
102	ተቐመ የሚሰጠው የአገልግሎት አይነት	1.ምግብ ብቻ 2.መጠጥ ብቻ 3.ምግብና መጠጥ 4. ምግብና መጠጥ ከመኝታ ጋር 5. ሌሎች ካሉ (ይጠቀሱ_)		/__/
103	የባለቤቱ/የሃላፊው ጾታ		1.ወንድ 2.ሴት	
104	የባለቤቱ/የሃላፊው እድሜ		1.18-24 2.25-34 3.35-44 4.45-54 5.>=55	/__/
105	የባለቤቱ/የሃላፊው የትምህርት ሁኔታና ደረጃ		1.ያልተማረ 2.የተማረ _____ክፍል	/__/
106	የባለቤቱ/የሃላፊው የጋብቻ ሁኔታ		1. ያላገባ 2.ያገባ 3.የተፋታ 4.አጋሩን በሞት ያጣ 5.ካጋሩጋ ተለያይቶ የሚኖር	/__/
107	የተቐመ ሃላፊ ማን ነው	1.ባለቤቱ 2.ዘመድ 3.ተቀጣሪ		
108	ተቐመ የሚገለገልበት ህንጻ የባለቤትነት ሁኔታ		1.የግል ይዞታ 2.በኪራይ	/__/
109	ተቐመ አገልግሎት የሰጠበት ጊዜ በአመት?		1. 1-2አመት 2. 3- 5አመት 3. 6-10አመት 4.11አመትና በላይ	
110	ባለቤቱ/ሃላፊው የመሰረታዊ ንጽህና አጠባበቅና የምግብ ዝግጅት ስሌጠና አለው		1. አለው 2. የለውም	
111	ባለፉት 6 ወራት በባለስልጣን መስሪያ ቤቱ ቁጥጥር ከተደረገ?		1. አዎ ተደር. 2. አልተደረገም	
112	በተሰጠው ፍቃድ	1.በተፈቀደለት የአገልግሎት መስክ ብቻ ነው የሚሰራው 2.ከተፈቀደለት	3. ከተፈቀደለት ውጪ ሌሎች አገልግሎቶችንም	

	መሰረት አገልግሎት እየሰጠ ነው?	ውጪ ሌላ ልዩ አገልግሎትም የሰጣል.	ይሰጣል.	
2. የምግብ አገልግሎት በሚሰጡ ተቐማት ላይ የማብሰያ ክፍሉ ሁኔታ				
201	ተቐሙ የምግብ ማብሰያ ክፍል አለው?		1.አለው 2.የለውም	/_/
202	ምግብ ማዘጋጃ እቃዎች ከሚታይ ቆሻሻና አዋራ የጸዳ ነው?		1.አዎ 2.አይደለም	/_/
203	በማብሰያ ክፍል ውስጥ ለምግብ መዘጋጃና ለማጠቢያ የሚሆን የውሀ መስመር ካለ?	1.አለ 2.አለም		/_/
204	የበሰሉ ምግቦች በጥሩ ሁኔታ ተሸፍነው የሚቀመጡ ከሆነ?	1.አዎ 2.አይቀመጡም		
205	በጉብኝት ወቅት ወለሉ ንጹህ ነበር?		1. አዎ 2. አልነበረም	/_/
2.2 የማብሰያ ክፍሉ የአየር ዝውውር ሁኔታ;ከነብሳትና ከተባይ ስለመጠበቁ				
206	የጭስ ማውጫና ለአየር ዝውውር ሚረዱ ግንባታዎች አሉ?		1. አዎ 2.የሉም	/_/
207	በጉብኝት ወቅት ተባይና ነብሳት የሚታዩ ከሆነ?		1.የሉም 2.አዎ አሉ, አሉ ካሉ አይነታቸው 1.ዝንብ 2.አይጥ3. በረሮ 4. ሌሎች(ይገለጹ__)	/_/

3 የእቃ ማስቀመጫና መጋዘኑ; የፍሪጅ አጠቃላይ ሁኔታ			
301	በቀላሉ ለሚበላሹ ምግብና መጠጦች ማስቀመጫ የሚሆን ፍሪጅ አለየቅዝቃዜናየሙቀት ደረጃ መለኪያ አለው? ?	1.አዎ አለ 2.የለም	/_/
302	ተቐሙ ለብቻው የተለየ የእቃ ማስቀመጫ ክፍል አለው?	1.አለው 2.የለውም	/_/
4. ለተመረጡና ከምግብ ጋር ንክኪ ላላቸው ሰርተኞች ብቻ			
4. በግል ግምገማ ብቻ የሚሞሉ ከተግባራዊ የስራ ክንውን ጋር የተያያዙ መገምገሚያዎች			

401	ሰራተኛው/ዋ ንጽናው የተጠበቀ ተገቢውን የስራ ልብስ አድርጎ ከሆነ?	1. አዎ 2. አላደረገም	/_/
402	ሰራተኛው/ዋ ተገቢውን ንጽናው የጸጉር ሽፋን አድርጎ ከሆነ?	1.አዎ 2.አላደረገም	/_/
403	ባለፉት 6 ወራት የጤና ምርመራ የተደረገበት ካርድ ካለ	1.አዎ, አለ 2. አይ, አልተደረገም	/_/

ለአካባቢና ለግል ንጽህና ላይ አስፈላጊ የሆኑ አቅርቦቶችና ውሃን ጨምሮ 5.1 የውሃ አቅርቦት				
501	የውሃ አቅርቦት ከየት ነው?	1.በግል ለመጠቀም የተዘጋጀ መስመር 2. በጋራ ለመጠቀም የተዘጋጀ መስመር 3. ከሌላ የግል መስመር ላይ በመግዛት 4. ሌላ ካለ ይገለጽ_____		/_/
502	የመጠባበቂያ ውሃ ማጠራቀሚያ ታንከር አለ?	1.አዎ አለ 2.የለም		/_/
5.2 ከመጸዳጃ ቤት ጋር ለተያያዙ ሁኔታዎች				
503	የመጸዳጃ ቤቱ አይነት	1. ዘመናዊ በውሃ የሚሰራ 2.ካለ ውሃ በደረቁ የሚያገለግል 3.ሌሎች ካሉ ይጠቀሱ (__) 4.መጸዳጃ የለም		/_/
504	መጸዳጃ ቤቱ የወንድና የሴት ተብሎ የተከፈለ ነው?		1. አዎ ነው 2.አልተከፈለም	/_/
505	መጸዳጃ ቤቱ በጉብኝት ጊዜ ንጹህና ምቹ ነው?		1.አዎ ነው 2.አይደለም	
506	ከተጠቀሙ በሁዋላ የእጅ መታጠቢያ ተዘጋጅቶል?		1.ተዘጋጅቶል2.አልተዘጋጀም	/_/
5.3 በመመገቢያ ክፍል ያለውን የእጅ መታጠቢያና ተዛማጅ ሁኔታዎችን በተመለከተ				
507	የእጅ መታጠቢያና ቁሳቁሶቹ ሙሉ ናቸው?	1.እዎ ናቸው 2. አይደሉም		/_/
508	ለእጅ መታጠቢያ የሚሆን የሳሙና የቅርቦት አለ/?	1.አዎ አለ 2.የለም		/_/
5.4 የሻወር አገልግሎትን; ለሰራተኞች ብቻ የተዘጋጀ የማረፊያ ክፍል በተመለከተ				
509	ለሰራተኞች የሻወር አገልልሎት አለ?		1. አዎ 2.የለም	/_/

510	ለሰርተኞች የልብስ መቀየሪያ፤ማረፊያና የግል ንብረቶቻቸውን ማስቀመጫ ክፍል አለ?	1.አሥ 2.የለም	/_/
6. የምግብ ማዘጋጃና፤ማቅረቢያ እቃዎችን ማጠቢያ ቦታና ሁኔታው			
601	. የምግብ ማዘጋጃና፤ማቅረቢያ እቃዎችን ማጠቢያ ቦታ/ሲንክ ከአቀማመጥና አዘገጃጀት ሁኔታው በተመለከተ?	1.አሥ አለ 2.የለም	/_/
602	ካለም ባለስንት ክፈልፋይ ? የክፍልፋዩን ብዛት የጻፉ	_____	/_/

603	የምግብ መገልገያ እቃዎች በተለየና በንጹህ ቦታ ነው የሚቀመጥት ከብክለት ተጠብቀው?	1.አሥ 2.አይደለም	/_/
7. የቆሻሻ አወጋገድና አያያዝን በተመለከተ 8.1 የደረቅ ቆሻሻ አያያዝና አወጋገድ			
701	በተገቢው ቦታ ተገቢ የሆነ የቆሻሻ ማጠራቀሚያ ካለ?በደንብ የሚዘጋና ጥብቅ ነው?	1.አሥ አለ 2.የለም	/_/
702	ማጠራቀሚያው ሞልቶ ከመፍሰሱ በፊት በተገቢው መልኩ ይወገዳል?	1.አሥ 2.አይወገድም	/_/
703	ማጠራቀሚያው በስተመጨረሻ የት የገለበጣል?	1. ለማዘጋጃቤት አስወጋጆች 2. እዛው ይቃጠላል 3. በመንገድ ላያ ይደፋል 4.ወደ ወንዝ ይደፋል 5.ሌላ ካለ ይገለጽ(___)	/_/
7.2 የፍሳሽ ቆሻሻ ማጠራቀሚና ማስወገጃ መስመር ሁኔታ			
704	የ ፍሳሽ ቆሻሻን ለማጠራቀምና ለማስወገጃ የሚሆን የፍሳሽ ማስወገጃ መስመር ተዘርግቶአል/አለ?	1.አሥ አለ 2.የለም	/_/
705	በስተመጨረሻ የፍሳሽ ቆሻሻው የሚወገደው የት ነው?	1.በአካባቢው ባለ ክፍት በሆነ የፍሳሽ ማስወገጃ ትቦ 2.ወደ ሴፕቲክ ታንክ 3.ወደ ሽንት ቤት ይደፋል 4.ወደ ወንዝ የደፋል 5. ሌላ ካለ ይገለጽ (_____)	/_/

አስተያየት_____
_____
_____