COLLEGE OF DEVELOPMENT STUDIES

CENTER FOR FOOD SECURITY STUDIES

Food Safety Knowledge, Attitude and Practices of Street Food Vendors and the Challenge to Food Security: The case of vending sheds around Mexico Square, Addis Ababa

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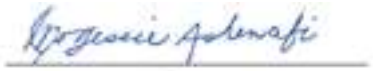
Mogessie Ashenafi	28 Nov., 2022	
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DECLARATION

I, the undersigned, the regular MSc student in the college of development studies and center for food security studies, ID. No GSR/6470/13 do here by declare that this thesis is my original work and that it has not been submitted partially, or in full, by any other person for an award of a masters in any other university organization.

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The first and forever salutation is to my Almighty God that allows and let accomplish not only this research paper but also favoring my entire life. On the accomplishment of this paper, my Advisor Professor Mogessie Ashenafi is the key and credited utmost. Second, my research instructor Dr. Solomon Tsehay is also that I would like to acknowledge helpful to the methodologies to the research. The next that I give a credit and aknowledgment from the bottom of my heart is my wife Lemelem Wodajo, who managed our families especialy caring our doughter and son while I was giving the most of my time on jobs and education.

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OPERATIONAL DEFINITIONS

Vendors' Knowledge: - on food poisoning pathogens, cleaning and sanitation, high risk group of foods, personal hygiene.

Vendors Attitude: - Feeling of vendors on food specifications, food placement, personal hygiene issues, sustaining the business as long-time livelihood and its contribution for food security for themselves and others urban poor.

Vendors Practice: - on food handling acts/operations, food stall details, environment around the stall, personal hygiene, food storage facilities at the stall, utensil maintenance and licensing issues are the main gaps to be looked into to intervene the food safety bottlenecks of the street food sector which will have great contribution to ensure food security of individuals, households and consumers.

Street Food: - Street foods are those foods prepared on the street and ready- to- eat foods and beverages prepared at home and on site by vendors in streets or other public place and consumed on the street without further preparation.

Stall; a place where street food is prepared, displayed, served or sold to the public.

Safe Food; Free from any physical, chemical and microbiological hazards/contaminants that may harm the health of consumers and nourishes the human body.

Unsafe Food; According to Jean Kinsey (2004); Unsafe food eaten by poor people jeopardizes their health as surely as too little food. this is in the context of food security.

Bloom's cut-off point is a methodology used to categorize the food safety KAP result of street food vendors.

The overall **Knowledge**; - Good if the score was between 80 and 100%, Moderate if the score was between 60 and 79%, and Poor if the score was less than 60%.

The overall **Attitude**; - Good if the score was between 80 and 100%, Moderate if the score was between 60 and 79%, and Poor if the score was less than 60%.

The overall **Practice**; - Good if the score was between 80 and 100%, Moderate if the score was between 60 and 79%, and Poor if the score was less than 60%.

ACRONYMS AND ABBREVIATIONS

KAP: Knowledge, Attitude and Practice

GMP: Good Manufacturing Practices

GHP: Good Hygiene Practices

GSP: Good Storage Practices

WHO: World Health Organization

FAO: Food and Agricultural Organization

HFIAS: Household Food Insecurity Access Scale

KII: Key informant Interview

PCAH: Polycyclic aromatic Hydrocarbons

ABSTRACT

Street foods are common in in Addis Ababa. Although the business is considered as informal and illegal by the city administration, street food operation creates significant self-employment opportunities and contributes to the food security of low-income consumers and vendors. The food security status and food safety knowledge and practice of 160 stationary street food vendors was assessed around Mexico Square, Addis Ababa. A detailed site observation was made around vending sites. Household food insecurity experience and food safety KAP of vending households was assessed using standard questionnaires. Job-specific interviews were made on street food operation with key informants from among woreda officials and consumers. Quantitative data was analyzed using descriptive statistics and opinions of key informants were described. About 72% of the street food vendors were female. Over 90% were adolescents or young adults and 30% had more than three children. About 71% of vendor households were either moderately or severely food insecure. Vendors had good knowledge (81%), moderate attitude (74%) but very poor practice (14%) in food safety. Street food vending was the only source of affordable meals to low-income groups in the study area. Meals were served and consumed immediately after cooking minimizing food safety risks. As street food vending creates economic and physical access to the low-paid urban poor and is a livelihood to poor families, it may be useful to recognize its positive role in mitigating food insecurity. Government control on food safety compliance, allocation of vending zones, and giving training to street food vendors could improve safety of street foods.

Key words: Street foods, food safety KAP, food security

1. CHAPTER ONE: INTRODUCTION

1.1. Background

As defined by FAO/WHO (2000), "Street foods are ready-to-eat foods and beverages purchased on the street and prepared at home or on-site by vendors or hawkers in streets or other public places. They are consumed on the street or elsewhere without further preparation". Street food provides a convenient diet for many people, especially in developing countries, and approximately 2.5 billion people eat street foods every day (FAO, 2019). Street foods, therefore, supply inexpensive, attractive, diversified, and convenient foods which are nutritionally important for consumers along various groups of the urban poor (WHO, 1996). They are a major means of income for more people. Also, it opens an opportunity for business skills with low capital investment and needs to engage in self-employment (WHO, 2005).

"Street foods are intimately connected with take-out, junk foods (pre-prepared or packed), snacks, and fast food and have long traditions in most countries". It is also regarded as tasty, distinguishable by its local flavor, and can be purchased on the footway without entry into buildings. Also, it is the coping strategy for the urban poor to obtain income and ensure food and nutrition security for both vendors and consumers as it is physically and economically accessible to most people (FAO, 1996). In addition to this, it is a livelihood opportunity for especially vulnerable groups like women, children, and students though it may cause health problems if the food is not prepared and handled properly (FAO, 1996).

As defined by the food and agricultural organization (1996), food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary and food preferences for an active and healthy life. Moreover, food security comprises four major dimensions for one to be food secured. These are availability, accessibility, stability and safety. Therefore, street foods can answer the accessibility dimension for the urban poor. However, the safety of it contradicts another key dimension of food security.

Street food demands are increasing parallel to the expansion of urbanization both in developed and developing nations. The low cost, accessibility, and convenience are the key factors for the growing popularity of street foods. Speedy urbanization is crushing down traditional families across the world and the street food sector is widely understood as a phenomenon bound to urban

development. Urbanization and population growth in developing countries continues unstoppably, and the street food business sector largely, but not solely, is an urban sight. It is also a means of self-employment and enables one to develop business skills with low capital investment. Moreover, 74% of countries reported street foods to be a significant part of the urban food supply WHO (1996).

Most studies revealed that street foods do not only ensure the food security of the urban poor but also, the nutrition security of those who consume them. According to Seguya et al., (2020), it provided the highest contribution of Sodium and Calcium and the main consumers were fellow hawkers and casual wage laborers, children, and students, office workers (FAO and WHO, 2005). Street food contributes to food and nutrition security as they are physically and economically accessible (FAO and WHO, 2000). The sector provides livelihoods to producers of raw materials, and processors and provides inexpensive, nutritious, and tasty food to masses of working women, men, children, and students. Similarly, all groups of people are consumers of street vended foods in Addis Ababa and is a means of livelihood and ensuring food security for the urban poor (Temesgen Eliku, 2016).

Unluckily, everyone has a perception that street-vended foods are unsafe mainly because of the vendors themselves, the equipment used, and the environment under which they are prepared, displayed, and served, which may expose the food to numerous potential contaminants. Mostly, vendors prepare at their houses and display unsanitary street sites not meeting the minimum food safety requirements (FAO/WHO, 2005). Street foods may pose significant public health problems because of the lack of basic infrastructure and difficulty in managing vending operations, due to their diversity, mobility, and temporary nature (WHO (1996).

According to the study done by Temesgen Eliku (2016), despite the means of food and income generating business and the livelihood of households in Ethiopia, Addis Ababa, its vending operation and the delivery condition is unsanitary. This was sourced from the equipment used, vendors themselves and the environment. Also lack of awareness of street food vendors about safe handling and lack of infrastructure are also the results of the study. Street foods in Ethiopia are not protected from insects, dust and other contaminants due poor handling (Samuel Chane, 2020). Most of the foodborne diseases from street food pose significant problems which need governmental attention for corrective measures (Mogessie Ashenafi, 2006). However, despite more studies done on street food vending and delivery operations, there were no attempts and

measures taken to intervene in the factors causing street food most unsafe. Moreover, it is impossible to avoid and/or stop the growth of the business throughout the towns of Ethiopia as most of the urban poor in different cities get their food on streets. This is according to the studies rvealed in Gondar town (Azanaw Amare et al., 2019), Hawassa (Mogessie Ashenafi, 1995; Temesgen Eromo et al., 2016), Jigjiga city (Tesfaye Wolde et al., 2016), Jimma town (Tibeso Gemechu, 2022), towns in West Gojjam zone (Chekol Chalachew et al., 2021), Addis Ababa (Temesgen eliku, 2016; Diriba Muleta and Mogessie Ashenafi, 2000), Dire Dawa (Gizaw Tadesse et al., 2019), Woldia town (Kindu Alem**,** 2020).

Based on those studies, Ethiopia comprises different social, economic and feeding cultures, diversified foods and cuisine. However, the street food vendors knowledge and practice, the sanitary condition of the environment and the weak link of the business and the government leads the operation to cause health risk to the public unless, the government gives due attention to manage street vending of foods like other food establishments.

1.2. Statement of the Problem

Street food vending is an emerging industry and addresses the urban dimension of food security. It is growing fast especially in developing countries and in Africa (SSA) countries including Ethiopia because of the continuously growing population and urbanization simultaneously (Alfred et al., 2015).

Street food vending in Addis Ababa is being undertaken around schools, bus stations, taxi stations, street walkways where in certain case, the stalls are close to all sources of contaminations (Temesgen Eliku, 2016).

Street food vending sites are not identified, making it difficult to manage the large number of street vending operations as they are diverse, move from one to another location and have temporary nature. Thus, attempts to set control systems that could improve the way street food vending seem unmanageable (FAO/WHO,2006).

Various street foods are reported to carry disease causing germs or allow the growth of such germs to multiply in them (Mogessie Ashenafi, 2006). On the other hand, if vendors lack food safety knowledge and practices, it will continue as a health risk for consumers and public health threat to the country at large, and affects the business negatively (Deriba and Mogessie,2009).

Therefore, as revealed from various studies conducted, the safety of street foods is a public health risk for consumers and is a bottleneck for the business expansion followed by unemployment to vendors engaged and others to be engaged. This is mainly because of the vendors gap on knowledge, attitude and practice who handle the food like nonfood goods which is far from being hygienic and absence of government concern to the sector and is similar here in Addis Ababa.

Thus, it is timely to assess the food safety knowledge, attitude and practices (KAP) of vendors for the purpose of reducing health threat to consumers, and save street food vendors from losing their business. Damage of the street food business because of unsafe street foods, results to food and nutrition insecurity of consumers and street food vendors themselves.

Most of the studies on street foods did not separately look into KAP of the stationary (fixed) vendors and did not prioritize the factors that cause the street food most unsafe for consumers. In addition to these, did not link the safety of street food effect with food and nutrition security. Therefore, this study will assess the gaps in KAP of vendors and related problems in the study area and come out with respective recommendations.

1.3. Objective of the Study

1.3.1. General Objective

The fundamental objective of this study was to assess the gaps of food safety knowledge, attitude and practice of street food vendors and identify the factors that cause the street foods most unsafe to consumers and evaluate the effect of street foods to food security of vendors and consumers in Mexico Square, Addis Ababa.

1.3.2. Specific Objectives

- To identify the socio-economic and demographic characteristics of street food vendors in the study area.
- To assess the status of food safety KAP of street food vendors in the study area.
- To identify and indicate the factors in the vending environment that could make the street foods unsafe for consumers.
- To assess and evaluate food security status of street food vendors in the study area.

1.3.3. Research Questions

1. Do vendors have knowledge on food safety, cleaning and sanitation, personal hygiene of themselves and high-risk groups of foods?
2. Do vendors have safe handling, processing and servicing practices while they deliver the food for their consumers?
3. What is the attitude of vendors while they operate the street food business in the study area?
4. What are the major factors causing the street food most unsafe in the study area?
5. What is the food security status of street food vendors in the study area?

1.4. Significance of the Study

Despite the food safety challenges, the street food business is an emerging and rapidly growing industry providing importance to food and nutrition security, employment to millions of the rural-urban migrants and the urban poor.

Therefore, this study has addressed and identified the food safety challenges in terms of knowledge, attitude and practice gaps of street food vendors and other factors in the study area and forwarded the improvement measures to be taken. In general, the finding provides a foundation and reference to policy makers, development practitioners and scholars interested in furthering the study.

1.5. Scope of the Study

This research will be applicable on stationary and/or fixed street food vendors around Mexico square Addis Ababa.

1.6. Limitation of the Study

The study considered only those stalls found within 200 meters radius around Mexico Square in all directions. This study did not include the mobile street food vendors. Similarly, the observations were not done on food preparations at their homes.

2. CHAPTER TWO

2.1. LITERATURE REVIEW

2.1.1. Empirical Review

As urbanization increases, street food vending grows simultaneously, while urbanization is characterized by considerable distance between home and workplace, tight- time schedule, long working hours, small housing conditions not conducive to prepare their food and lack of knowledge of cooking by migrants without family (Arambulo et al., 1994). Therefore, street food vending is the development characteristic of urbanization. For daily micronutrient intakes, the highest contribution was to sodium (38.4%) and Calcium (36.5%) contributing a third daily intake. For vitamins, Vit. A (11.3%) and Vit. C (24.1%) it contributed less than a quarter of the daily total (Seguya et al.,2020).

According to street foods ecology by Mwangi (2002), high rates of urbanization have been coupled with lack of employment and increased urban poverty and under nutrition in developing countries. As a survival strategy, urban populations are therefore utilizing street foods as an initiative having a double function of addressing increasing problems of urban poverty and undernutrition in developing countries.

The study done in Bangladesh shows that street foods play an important socio-economic role in meeting food and nutritional requirements of city consumers at affordable prices to the lower- and middle-income groups which have been cherished because of their unique flavors convenience (Md.Khairuzzaman, 2014). And also, in Dhaka alone, 200,000 people earn their living by selling street foods. Similarly, in a study conducted in Can Tho City, in Vietnam, by Tong et.al (2021), 95% of the urban population consumes street foods.

Streets foods are taken as fortified foods as they help as a means of introducing new micronutrient, rich foods to consumers in developing countries magnifying their contribution to nutrition security. Moreover, in some of the street foods, food additives and colors additives can provide antioxidants. artificial sweeteners, emulsifiers and stabilizers and flavor modifiers and enhancers provide preservation, enhance or reduce the smell or flavors of a food (Ohiokpehai,2003).

The street food sector also assures food security for low-income urban population and livelihood for a significant proportion of the population. In many developing countries it provides inexpensive, diversified, nutritious and convenient food (Md.Khairuzzaman, 2014).

In contrast to these, the food safety challenge is a bottleneck to both consumers and vendors as it may pose significant health problems and business loses which cause food insecurity for individuals and households. As most of the studies showed, street food vendors are often poor, uneducated and lack knowledge and appropriate practice. They are poor on hygiene, cleaning and sanitation which lead street foods to be perceived as a major public health risk. Moreover, water supply and source, utensil cleaning, food serving and handling practice, usage of cooking oil, possession of health certificate and waste disposal practices are challenging as most of the street food vending business is conducted along the roads where there are potential contaminants (Nkosi and Tabit,2021).

As the study of FAO (2009) indicates, food contamination from street vended food is a big agenda in many parts of the globe. So far, the hygiene of vendors themselves has been stated to pose health risk to themselves and customers (Akinbode et al 2011). Eating vendors food was reported to cause outbreaks of some diseases (Todd et al.,2007) and considering the urgency of the seriousness, there has been an increased concern in the world vis-à-vis food safety (van Tonder,2007).

Vendors were illiterate who were not able to write their names (Graffham et. el,2005). As the business requires low investment, most of the vendors (88%) were found to own the business with no competencies while the job was being commenced (Graffham et. el,2005). They reportedly work for 13-18 hours a day without having the toilet facilities. Most of the vending shops (68%) were located on the foot bath and 30% vending carts were placed near the municipal drain and 18% near the sewerage (Graffham et. el,2005). Microbiological study of different food items, drinking water, and hand swab samples showed the prevalence of overwhelmingly high numbers of aerobic bacteria, coliform bacteria, and pathogens (FAO/WHO,2005).

Research conducted in China results showed that street food suppliers had poor food handling practices and operated in unsanitary conditions. The same source revealed that the youngest people have better understanding than the older ones and moreover, street food vendors were poor in caring out safe food handling with only 20.6% using and/or fully equipped with hand washing facilities, although more than 60% of vendors wore clean and tidy clothes and masks (Ma, 2019).

Studies conducted by the FAO expert groups (FAO) in Africa, Asia and Latin America pointed out that the important aspects of street foods are their safety. The studies had also suggested that the problems associated with the safety of street foods need to be addressed for the sake of protecting consumers health.

In a study conducted in Zululand district South Africa, “the vast majority (76%) of the vendors had low food safety knowledge and only 14% the strict vending sites had high sanitary compliance conditions (Nkosi and Tobit, 2021). And the result of the study demonstrates most of the SF vending facilities of street food vendors constitute a food safety risk for consumers. due to primarily in adequate food safety knowledge of street food vendors, non-compliant street food vending infrastructures and weak link of the regulation and/or control system” ((Nkosi and Tabit,2021).

According to Namugumya and Muyanja, (2011), 35% of street food vendors changed the utensils cleaning water when it looked dirty and 26.5% did not change until the end of the vending operation in Kampala due to the scarcity of water. The majority of vendors used soap for washing their plates and 84% of them did not change the rinsed water and until waited for it looked dirty. Similarly, the study indicated that 90.7% of them used recycled papers for packaging food for their consumers and the remaining 9.3% used plastic packaging (Namugumya and Muyanja, 2011).

In the study conducted in South Africa, on 399 randomly selected street food vendors, the vast majority (76%) of them had not attended any food safety training and only 14% of the street food vending sites had high compliance with sanitary conditions (Nkosi and Tabit, 2021). As the study had demonstrated that most of the vending facilities of street food vendors constitute a food safety risk to the consumers and this was predominantly due to the possession of inadequate food safety knowledge, attitude and practice, non-compliant street food vending infrastructure and lack of governmental control system (Nkosi and Tabit, 2021).

Similarly, research conducted in Addis Abba, on microbiological and socio-economic descriptions of some street vended food, showed that some street food items have food safety problems (Diriba Muleta and Mogessie Ashenafi,2000).

The business of street food vending, therefore, needs to be addressed carefully and in an innovative way in order to derive maximum benefits from it.

Street food vendors have been categorized under self-employed small entrepreneurs, not dependent on any institutional structures to ensure their livelihoods.

Therefore, as the studies showed, street foods constitute a potential microbial and chemical hazard to consumers health. Thus, it is useful to make the street foods safe, and grow to engage more vendors and assure the food security of the urban poor, the government and other interested groups should intervene to improve the situation.

Street food is intimately connected with take out, junk food, snacks and fast food. it is also regarded as tasty, distinguishable by its local flavor and can be purchased on the sidewalk without entry into the building (FAO/WHO,2005).

Street food vending in urban areas is a worldwide phenomenon and had been incorporated in the agenda of international organizations particularly the FAO and the WHO (1996). It has been estimated that 2.5 billion people globally consume street foods and it had gone beyond being the sign of deficiency and spectacle for developing countries to become a key form of diet and economic prosperity as affordable food and income generation specifically in low-income countries (Seguya et al.,2020).

Street foods have also mean cultural and heritage and play to attract tourists. Increased consumption of street foods has also been attributed to their significant contribution to nutrition and food security for millions of practitioners along the food chain, as well as being identified as potential vehicles for micronutrient fortification (Imathiu, 2017).

Though popular, street food vending activities in most developing countries are mostly unsafe due to the vendors in-competency of the food safety KAP and was operated outside the regulation and protection of the governments and official volume of trade involved is largely lacking (Samuel Imathiu, June 2017). Therefore, though to their perceived nutritional benefits of the society, street-sold foods are considered among the contributors of food borne diseases as they can transmit pathogenic microorganisms that can cause illness to consumers which is food insecurity controversially. Moreover, as the operation is not controlled and monitored with any governmental organization and vendors KAP is poor it can also contribute to foodborne illnesses as a result of presence of chemical hazards such as pesticide residues, heavy metals and process contaminants

they may contain. Thus, their quality is of great food safety concern as the consumers are continuously exposed to the risk of getting ill.

According to Myhara, NRI (1997), microbiological analysis caried out on waakye, fufu and salad samples in the Accra showed the presence of E. coli, Staphylococcus aureus, Clostridium pereferengens and Bacillus cereus and Salmonella species which cause foodborne diseases. From the finding of the microbiological analysis, the above microorganisms' effect has been discussed and measured its effect on food safety and /or consumers health.

Therefore, the presence of the bacterial species, E.-coli, is a sign for the presence of fecal contamination, from contaminated water, sewerage, food workers in contact with the food product, flies or other insect pests and certain strains of pathogens. Staphylococcus aureus in street foods, come the skin and on mucous membranes like the nose. Though it produces toxins and causes food poisoning, they are not yet considered as hazardous. Clostridium perfringens and Bacillus cereus are found everywhere and though they produce toxins and causes food poisoning, they are not considered hazardous too. On the other hand, the presence of Salmonella species which cause food borne disease are pathogenic and therefore can be dangerous after consumed. Beyond the microbes there also contaminants from heavy metals (cadmium and lead), pesticides and mycotoxins.

Process contaminants of the street food are remarkable contaminants. These are polycyclic aromatic hydrocarbons (PAHs) and acrylamide. Street foods can significantly contribute to the intake of polycyclic aromatic hydrocarbons and acrylamide. As reported from a study in Bangkok 2005, grilled meat vendors were exposed to total polycyclic aromatic hydrocarbons at higher levels than other street vendors in the same area, possibly due to additional formation of these compounds during the grilling of meat. Moreover, re-using of frying oil, which is a common practice in many developing countries has been shown to promote formation of both PAHs and acrylamide to the most coverage. Indiscriminate open-air burning of trash may also expose foods to PAHs and dioxins.

Obviously street vended foods safety challenges are the bottleneck though it has numerous advantages to food and nutrition security that needs to be considered alongside several food safety issues as foods prepared and exposed for sale may become contaminated by pathogenic micro-organisms, physical hazards as well as hazardous chemicals. Both microbial and chemical hazards

can cause foodborne diseases though most of the studies carried out showed that the chemical hazards had been ignored. From the studies indicated, it has been estimated that foodborne illness causes up to 2.2 million deaths each year, of which 1.9 million are children, which showed that it was being a threat and needs to be prevented. Microbiological issue of street vended foods is the global concern for the safety of the consumers of street vended foods which is leading to several research efforts to determine the hygiene of the preparation, the environment and vending as well as the microbial hazards associated with consumption of these foods. Foodborne illnesses of microbial origin are a major health problem associated with street foods because of the environment, equipment's and utensils used, the KAP of vendors and medical status of vendors themselves. contamination and risk of street foods is dependent on the type of food, preparation and handling as microbial growth is suitable for foods having moisture, and specific temprature neither kill nor hide their activities. This is because most of the food borne diseases reported and immensely influencing negatively of the developing countries which the street foods remain great concern, therefore.

Most of the outbreaks have been closely linked not only with above factors but also unsound hygienic attitude and practice of street food vendors as the business is so informal so that they will not be accountable for bad practices they may commit. So far to this, the fact that in developing countries the street food operation is in unsafe environment made worse. In most instances, street food vendors are uneducated not trained for fundamental hygiene, good manufacturing practices and good hygienic practices. So far practically, most of developing countries governments including Ethiopia have not yet studied and set the GMPs, GHPs and GSPs and regulate to be implemented by the vendors.

In addition to this, pesticide residues are of burdens in street vended foods from the developing countries as the quality of raw materials is often overlooked. Street food vendors and their raw material suppliers usually buy raw materials with total neglection of the likelihood of presence of pesticides residues. Worth noting also is the fact that pesticides in developing countries are often used arbitrarily, and raw materials from which many street foods are made are never tested for presence or absence of these dangerous compounds that may have antinutritional factors as well and this is usually informal nature of the business that cause lack of proper regulation and/or controls by the government in many countries.

Mostly the practice of street food vendors is to spray products such as fish, fruits and vegetables with chemical disinfectants including formalin, a commercial solution of formaldehyde and water and this causes formalin contamination of children's street foods at schools as a study showed in Surakarta, Indonesia found Imathiu, Curr. Water, soils and non-food grade food handling and processing equipment through leaching are sources of heavy metals such as mercury, arsenic and lead, that may contaminate street vended foods as equipment such as cooking pots are purchased from the informal manufacturers who have little or no regard for chemical food safety and sell with lower prices.

A study carried out by FAO/WHO (1996), has shown that pots used in preparation of street foods in many developing countries are often manufactured using materials not suitable for use with foods, such as damaged cars bodies and industrial machinery. More than this, an investigation carried out in Ghana some samples of street foods had high levels of arsenic, cadmium, copper, lead and mercury conceivably from leaching of utensils fabricated by the informal retailers that use non- food grade raw material.

KAP assessments are usually used to assess and understand various public health related issues in Africa since the 1960s (Schopper et al., 19931). Although KAP methodologies are used to plan and manage programs and projects or assess the impact of interventions in different rural communities (Annika, 2009), where as in this study KAP has been used as a tool to assess the current status of food safety situations of street foods in the study area and to identify gaps among in the activities. A KAP survey is a path-way or guiding tool to clarify human behavior and practices (Rahman et al., 2012). As the KAP survey alone as a methodology could not produce enough information, and in this study, it has been supported with field observations especially on sanitary conditions and vendors food safety practice and parallelly by key informant interview with informed ones like health extension workers, small and medium enterprise officers and woreda regulatory officers. In addition, factors that cause the street food most un safe in the study area were analyzed. Thus, food safety assessment around Mexico square was made in terms of food safety KAP and field observations on street food vending operations including personal hygiene of vendors, sanitation practices, and surrounding environment of vending stalls.

2.1.2. Theoretical Analysis

A Theoretical Model Including Atmosphere and Hedonism gives a broader scope:

Street food vending is a survival strategy for disadvantaged groups of large cities. It generates a means of living for women (Tinker, 1999), rural-urban migrants (Etzold, 2016), and transnational immigrants of modern cities" (Bhimji, 2010). A great variety of food is sold on the streets. Street food is mostly produced by using local foods and cooked with traditional techniques and also reflects the ethnic diversity of city residents and their cuisines (Calloni, 2013). Moreover, the creation of a vibrant urban space by street food vendors enables socialization for city residents and also attracts tourists to the districts of food sale (Newman & Burnett, 2013).

As evidenced by issues with personal hygiene (Aluko et al., 2014; da Silva et al., 2014), management of leftover food (Choudhury et al., 2011), and the preservation of raw or cooked food (Aluko et al., 2014), food vendors' practices are far from being hygienic in a number of regions, including Africa, Asia, and South America, which is contrary to the theoretical model.

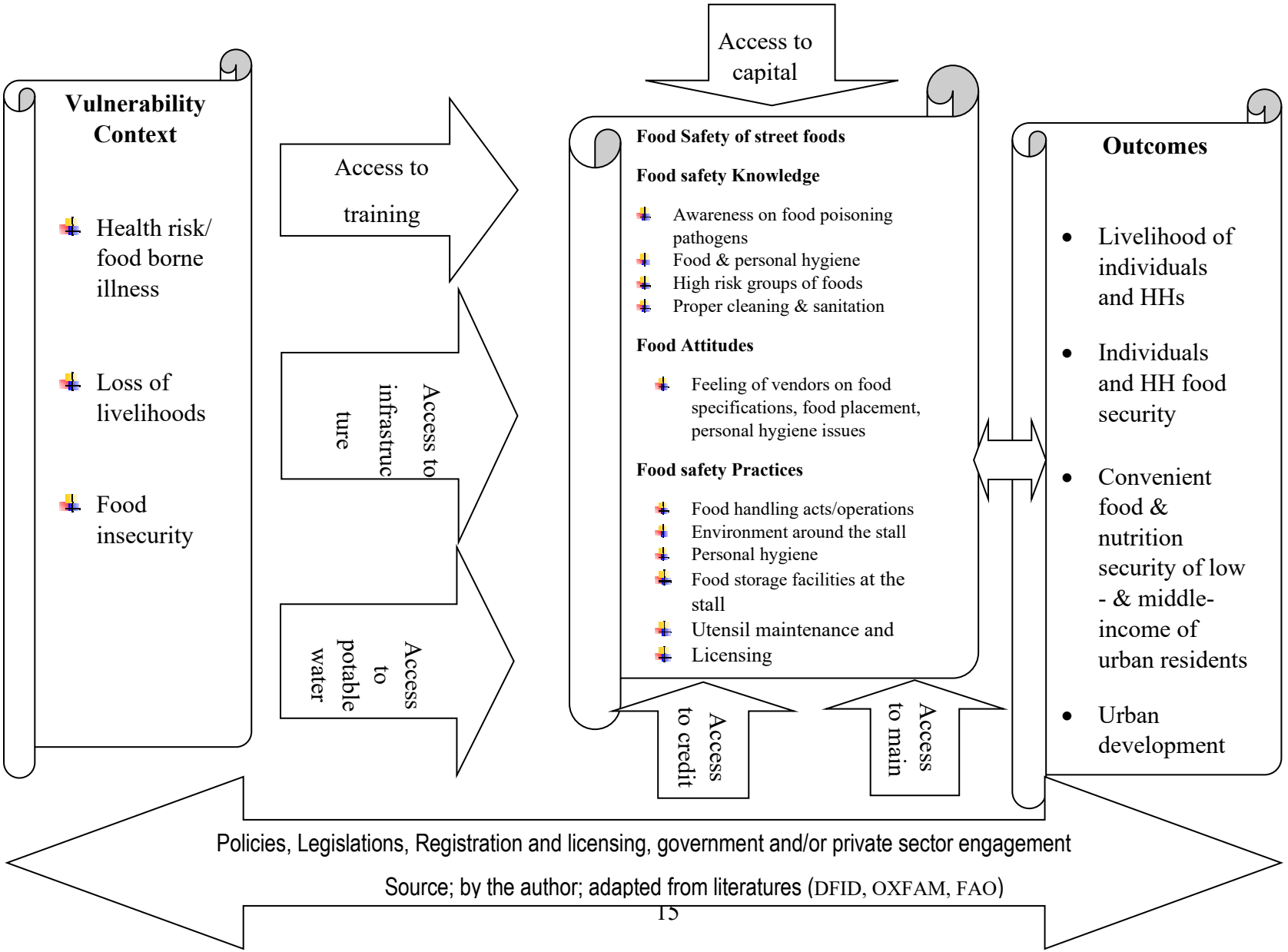
Despite the concerns of food safety, street foods stand for sufficient nutritional sources which are consumed by billions of people worldwide every day, both in developing and developed countries (Seguya et al.,2020).

As expressed in the 1996 World Food Summit (FAO, 1996): "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".

Moreover, the food and nutrition security framework states that to achieve food security; -one among the three dimensions, ensuring the utilization of those food supplies is appropriate to meet the specific dietary and health needs of all individuals within a household.

Based on this framework, one focus of utilization of food is about food safety entailing that the food along its production, processing, handling and delivery should be maintained as safe and free from any harmful substance. However, the street food vending in Addis Ababa did not assure it, because the knowledge, attitude and practice (KAP) of street food vendors are poor. Vendors' do not follow good hygienic practice (GHP), good storage practice (GSP), and appropriate raw material and equipment purchase.

2.1.2.1. Conceptual framework



Source; by the author; adapted from literatures (DFID, OXFAM, FAO)

3. CHAPTER THREE

3.1. METHODS AND MATERIALS

3.1.1. Study Area Description

Mexico Square (9°0'37"N; 38°44'40"E) is a traffic circle in Addis Ababa, Ethiopia, bordering woredas Five and Six of Kirkos sub-city and Woreda Eight of Lideta sub-city. It is named after the country of Mexico, which, after the Second Italo-Ethiopian War, refused to recognize Italy's annexation of Ethiopia (Wikipedia, 2021). The Addis Ababa Light Rail system has an overpass over Mexico Square.

Figure 3-1 Map of the study area bordering Lideta (green) and Kirkos (yellow) sub-cities.

3.1.2. Study Design and Period

A cross-sectional study was conducted from January to March 2022.

3.1.3. Study Population

The study population consisted of street food vendors from the three woredas found along the streets within 200-meter radius of Mexico Square.

3.1.4. Source of Population

The source of population was all street food vendors around Mexico Square of which contains neighboring woredas of Kirkos and Ledeta sub city.

3.1.5. Eligible Criteria

Eligibility criteria for this research is a consent to participate or refusal in the face-to-face interview and stability nature of street food vendors, either stationary or mobile.

3.1.6. Inclusion Criteria

Street food vendors who agreed to participate in the interview and those having fixed stalls and stable nature for vending had been included.

3.1.7. Exclusion Criteria

Mobile street food vendors and stationary vendors who did not give their consent were excluded.

3.1.8. Data Sources

The primary data was obtained by the survey conducted using observations, structured questionnaires, open-ended questions and observations and secondary data was taken from literature reviews.

3.1.9. Sample Size Determination, Sampling Techniques and Procedures

3.1.9.1. Sample Size Determination

Street food vendors, working in stationary sheds, were selected by random sampling. According to Woreda Small and Micro Enterprise office, there were about 400 street food vending sheds within the radius (personal communication). Sample size was determined according to Yamane (1967) and a total of 160 street food vendors were considered in this study. Street food vendors who agreed to participate were selected until the sample seize was reached.

Yamane's sample size determination (Yamane, 1967) was used for this study as the study population was homogenous.

$$n = \frac{N}{(1 + N(e2))} \qquad \text{…….. (1)}$$

Where, n = the desired sample size.

N = total number of population and

e = the level of precision or the quality of being care full and accurate which is equal to 0.05.

The total number of street food vendors (stationary ones only) around Mexico Square was estimated to be 400 (personal communication with Woreda small and micro enterprise office staffs). Based on this, the sample size has been calculated as:

n= 400/1+400(0.05)2

= 400/2.5

= 160.

With simple random sampling method, 160 vendors not including the non-respondents, were around Mexico Square. Voluntarily 4 key informants were selected from woreda offices and the rest 21 were selected purposively from the surroundings of street food vendors who are engaged on street vending of other goods and who were consumers of street foods as well.

Structured questionnaire was used to assess food security status and food safety KAP of vendors. Checklists and open-ended questions were used during field observation of street vendors and their stalls to evaluate food handling practices. Checklists were used to evaluate street vendor food handling practices. The data collection was done by officers and health extension workers working in the respective woredas around Mexico square. The researcher had given questionnaires and written consent for data collectors. The data collectors provided the written consent to the respondents. The researcher did the follow up and supervision while the data was collected.

3.1.9.2. Sampling Technique and Procedures

Street food vendors, working in stationary stalls, were selected by random sampling. Accordingly, those who agreed to participate were selected along all the streets around Mexico Square until the sample seize was reached within 200 meters radius until the sample seize was reached. In addition to this, interested groups and consumers around the study area were also interviewed using open ended questionnaires. In addition to this, interested groups and consumers around the study area were also interviewed using open ended questionnaires.

3.1.9.3. Data Collection Instrument and Procedure

Quantitative and qualitative research approach was used. Data was collected by health extension workers and, small and medium scale employees working in the study woredas. Field observations were done on sanitary conditions of environment and display of the street foods using checklists.

In addition, four key informants among health extension workers, SME officers and kebele regulatory controllers and consumers were interviewed. Questions were specific and sector based,

to look into sector wise problems of street food operation and business. About 21 other key informants, engaged in street vending of other goods and consuming the street food in the study area, were asked to prioritize the given five factors that make the street food most unsafe.

Information on socio-demographic characteristics of vendors using structured questionnaires and food safety KAP was assessed according to Macias and Glasauer (2014). HFIAS was determined according to Coates et. al. (2007).

3.1.10.Data Quality management

Qestionaire survey was conducted on face-to- face basicro is by four health extention workers and small and micro enterprize office workers working in respective woredas with close support, followup and supervision. Resepndents who did not agreed with the consent were left. Data collected with errors were removed and instead data was collected until the sample size was reached considering the 10% non respondents in advance.

3.1.11. Independent Variables

- Food safety training
- Governmental linkage of the street food business
- Registration of vendors
- Licensing of vendors
- Access to hand wash facilities
- Access to potable water
- Access to main road
- Access to credit and capital

3.1.12.Dependent Variables

- Food safety knowledge of street food vendors
- Attitude of vendors for food safety
- Practice of vendors with respect to food safety

3.1.13.Data Processing and Analysis

The analysis had been done by descriptive and regression had been used for the quantitative data as well. The data collected had been analyzed by using SATA. descriptive statistics had been

used to analyze the food safety KAP surveyed and Food security experience and status collected by HFIAS. Ordered Logistic Regression was used to see the association of independent variables with dependent variables in the study area.

Structured questionnaires were used to assess Household Food Insecurity Access Scale (HFIAS) according to Coates et al. (2007).

Knowledge, attitude and practice on food safety was determined according to Macías and Glasauer, (2014) as follows:

Total KAP percentage among respondents was calculated as in Macías and Glasauer (2014)

$$\text{Percent of knowledge} = \frac{\text{Sum of correct responses given by all respondents}}{\text{Sum of all responses given by all respondents}} \times 100$$

Total positive attitude among respondents was calculated as;

$$\text{Percent of positive attitude} = \frac{\text{Sum of positive responses given by all respondents}}{\text{Sum of all responses given by all respondents}} \times 100$$

Similarly, appropriate practice was calculated as;

$$\text{Percent of practice} = \frac{\text{Sum of appropriate responses given by all respondents}}{\text{Sum of all responses given by all respondents}} \times 100$$

Values of food safety KAP of food handlers were classified as good (≥80%), moderate (60%-79%) and poor (<60%), using Bloom's cut-off points for KAP studies, (Zelalem Destaw et al., 2021).

3.1.14.Ethical Consideration

Data collection, interviews and observations were given in such a way that confidentiality of the information obtained from respondents and anonymity of respondents were maintained. In addition, COVID-19 protocols were followed during interview. Verbal consent to participate in the survey was obtained from participants.

4. CHAPTER FOUR

4.1. RESULT AND DISCUSSION

4.1.1. Field observation results

The street food business operation was observed around Mexico Square, an area congested with taxi, and bus stations, heavily populated walkways together with a large number of street vendors of goods other than street foods. Street food vendors chose their vending site regardless of potential source of contaminations in the surrounding. There were mobile and stationary street food vendors in the study area. It was observed that around some vending sites, open defecation was practiced especially during the night time, resulting in multiplication of insects and flies.

Most of the stationary street food vendors had stalls covered with plastic covers. they brought along and get prepared sauces and injera from their home. Ready foods like egg-based and other breakfast foods and Shiro, Beyaynet (combo), Macaroni, Pasta, Tibs and other local lunch foods were prepared on site as orders came in from customers. the price of these foods was decreased by half than a medium hotel (restaurant). They brought water from home in Jerricans or buckets for preparing food, cleaning of utensils and for hand-washing purposes. The plastic covers reduced the cross contaminants from the nearby environment and vendors showed competition to attract customers by wearing traditional clothes and gowns and keeping their hygiene except jewelries and nail paintings. Street food vendors did not feel confident and had fear that the local government might confiscate their stalls as the business was taken informal and disturbed the urban look. As street food vendors responded, in most sites for street food vending, stalls were given by local government officials for those who participated in different political events and mobilizations regularly. Most of such vendors rented the stalls to others instead. When the officials got replaced, they ordered to be confiscated.

Most of the young street food vendors, considered the job not as permanent means of livelihood, but as a pathway to another better-paying job. They considered protective measures such as sanitizing utensils and wearing as luxury.

4.1.2. Socio-economic and demographic characteristics of the street food vendors

As shown in the table below, 85(53.1%) of the respondents were from Woreda-five and the rest (46.9%) were from Woredas-six of Kirkos sub city and Woreda-eight of Ledeta sub city. Nevertheless, all sites were around Mexico Square and had the same nature and practice of street food vending operation. Most respondents (72.3%) were female, which was also the case in other places (Ackah et al., 2011; Tuglo et al., 2021, Letuka et al, 2019). Over 90% of our respondents were adolescents or young adults. Most were married (51.9%). The majority (93.8%) had elementary or secondary education) and only 3% were illiterate.

About 13.3% of street food vendors had got training access in food safety during their previous job engagements (working in the hotels and restaurants) but not during the street food vending job. Only 7.2% of respondents got credit access (in the form of borrowing or gift) from their families and relatives but no institutional support was made available to start and grow the business. Most of the street food vendors (60%) stayed in the business for less than one year, and the proportion dwindled to 5% within four years. This indicated that the business is dominated by beginners and they gradually left the business after about five years.

Table 4-1 Socio-economic and demographic status of the households of study area

Variables	Category	Study areas			Average
		Woreda 5 (n=85)	*Woreda* 6 (n=46)	*Woreda* 8 (n=29)	
		No. (%)	No. (%)	No. (%)	
Sex of respondents	Female	62 (73%)	30 (65%)	23 (79%)	115 (72.8%)
	Male	23 (27%)	16 (35%)	6 (21%)	45 (27.7%)
	Total	85 (100%)	46 (100%)	29 (100%)	160 (100%)
Age of respondents	15-18 Years(adolescents)	28 (33%)	17 (40%)	13 (45%)	58 (36.3%)
	20-39 (young adults)	52 (61%)	25 (54%)	15 (52%)	92 (57.5%)
	40-59 Years	5 (6%)	4 (6%)	1(3%)	10 (6.3%)
Marital status of respondents	Single	35 (41%)	12 (26%)	11(38%)	58 (36.3%)
	Married	43 (51%)	25 (55%)	15 (52%)	83 (51.9%)
	Divorced	5 (6%)	6 (13%)	3 (10%)	14 (8.8%)
	Widowed	2 (2%)	1 (2%)	-	3 (1.9%)
	Separated	-	2 (4%)	-	2 (1.3%)
Family size of respondents	Never	37 (44%)	14 (30%)	15 (52%)	66 (41.3%)
	1 to 2	25 (29%)	14 (30%)	7 (24%)	46 (27.7%
	3 to 4	18 (21%)	16 (35%)	4 (14%)	23.3%
	5 to 6	4 (5%)	2 (5%)	2 (7%)	38 (23.8%)

	Others	1 (1%)	-	1 (3%)	2 (1.3%)
Education status of respondents	Illiterate	3 (4%)	2 (4%)	-	5 (3.1%)
	Grade 6	51 (60%)	27 (59%)	21(72%)	99 (61.9%)
	Grades 7-12	25(29%)	13 (29%)	8 (28%)	46 (28.8%)
	Diploma	4 (5%)	2 (4%)	-	6 (3.8%)
	Other	2 (2%)	2 (4%)	-	4 (2.5%)
Experience on job status of respondents	<6 month	20 (24%)	9 (19%)	7 (24%)	36 (22.5%)
	>6 m to 1 Year	31 (36%)	17 (37%)	12 (42%)	60 (37.5%)
	1 to 2 Years	17(20%)	11 (24%)	7 (24%)	35 (21.9%)
	2 to 3 Years	8 (9%)	1 (2%)	3 (10%)	12 (7.5%)
	3 to 4 Years	5 (6%)	4 (9%)	-	9 (5.6%)
	Others	4 (5%)	4 (9%)	-	8 (5.0%)
Training access	Yes	11 (13%)	6 (13%)	4 (14%)	21 (13.1%)
	No	74 (87%)	40 (87%)	25 (86%)	139 (86.9%)
Credit access	Yes	7 (8%)	3 (7%)	3 (10%)	13 (8.1%)
	No	78 (92%)	43 (93%)	26 (90%)	147 (91.8%)
Water access	Yes	84 (99%)	46 (100%)	28 (97%)	158 (98.9%)
	No	1 (1%)	-	1(3%)	2 (1.3%)

Source: Author's computation and regression result using STATA 16.

4.1.2.1. Food safety knowledge assessment on street food vendors

Methods of food preparation, handling and servicing are those that help to prevent contamination of food and multiplication of disease-causing organisms during storage of food. Cooking food to the right temperature, avoiding contact of cooked food with raw food and heating leftovers before consumption are some of the methods of food handling. Vendors who are not aware of food safety in particular on food poisoning pathogens, cleaning and sanitation, high risk group of foods, and personal hygiene, will expose consumers to health risks.

The below table shows vendor's food safety knowledge status of SFVs as measured by using a structured questionnaire followed by face-to-face interview.

As the analyzed result shows, 74.5% of respondents "agree" and "strongly agree" which shows they have attained the food safety knowledge. In the other hand, 25.5% of respondents had responded as "disagree".

All respondents strongly agreed to "washing hands regularly before work as one part of personal hygiene". They also agreed to the statement that contaminated foods always had some change in color, odor or taste.

Table 4-2 Food Safety Knowledge of Street food vendors in the study area (n=160)

Knowledge Indicators	**No. (%)**
Personal Hygiene	
Washing hands regularly before work is one part of personal hygiene.	160 (100%)
Washing hands regularly after work is one part of personal hygiene.	156 (97.5%)
Proper hand Washing using soap reduces risk of food contamination.	158 (98.7%)
Washing hands with only water cannot clean enough.	157 (98.0%
Wearing apron, mask, gloves, and caps is part of personal hygiene.	96 (60.0%)
Wearing gloves regularly while starting work is part of personal hygiene.	90 (56.3%)
Use of gloves reduces the risk of transmitting infection to consumers.	97 (60.6%)
Broken gloves need to be changed with new ones.	106 (66.0%)
Wearing hair cover is one part of personal hygiene.	150 (93.8%)
Workers should avoid touching their hair after washing hands.	115 (71.9%)
Worker cannot have long nails and make coloring it.	112 (70.0%)
Average knowledge in personal hygiene	***79.3%***
Food Handling	
Eating and drinking in the workplace increase the risk of food contamination.	102 (63.8%)
Proper cleaning and handling of instruments reduces the risk of food contamination.	156 (97.5%)
Cleaning equipment after work can reduce cross contamination.	148 (92.5%)
Using hot water to clean equipment still decreases risk of contamination.	146 (91.0%)
Separating dirty zone from clean zone can reduce cross contamination.	150 (93.8%)
Contaminated foods always have some change in color, odor or taste.	160 (100%)
Reuse of oil is dangerous for health	141 (88.0%)
Reheating cooked foods can contribute to food contamination.	141 (88.0%)
Paper/polythene packs are unsafe for food packaging	131 (81.9)
Average knowledge in food handling	***88.5%***
Average knowledge in general food safety = 80.6%	

Source: Author's computation and regression result using STATA 16.

More than 40% our respondents disagreed that personal hygiene indicators of food safety knowledge include wearing protective clothing (apron, mask, gloves, and caps) regularly while starting work is part of personal hygiene, and eating and drinking in the workplace increase the risk of food contamination.

4.1.2.1. Food Safety Attitude Assessment on Street Food Vendors

As shown from the descriptive analysis of the vendors' attitude result, all believed that food Safety knowledge had benefit to personal life and the consumer.

However, about 50% had poor (negative) attitude towards using mask and wearing jewelries at work place and using cleaning and sanitizing chemicals for food contact machines.

This indicated that lack of positive attitude towards safe food handling of street foods would cause food to be unsafe. Therefore, food safety attitude is an area of intervention where concern should be given. Similar observations were made by Hossen et al. (2020) from Jashore region, Bangladish.

Table 4-3 Food safety attitude of street food vendors in the study area (n=160)

Attitude Indicators	Positive attitude
Personal hygiene	
Washing hands using soap is good	148 (92.5%)
Washing hand after toilet is good	153 (95.6%)
Washing hands before handling food reduces risk of food poisoning.	146 (91.3%)
Washing hands before touching non-packed foods is good	149 (93.1%)
Washing hands after touching non-packed foods avoids contamination	149 (93.1%)
Washing hands before touching ready foods avoids contamination	128 (80%)
Washing hands before wearing gloves is good	63 (39.4%)
Using apron is important in reducing risk of food contamination.	92 (57.5%)
Cleaning and sanitizing aprons are important	82 (51.3%)
Using mask is important in reducing risk of food contamination.	61 (38.1%)
Masking while sneezing and coughing is important	89 (68.5%)
Using hair cover is important in reducing risk of food contamination.	119 (74.4%)
Using gloves is important in reducing risk of food contamination.	67 (41.9%)
Keeping nails short and clean is good to reduce the risk of food contamination.	89 (55.6%)
Wearing jewelries at working hours is not good	74 (46.3%)
Average positive attitude in personal hygiene	***67.9%***
Food handling	
Food safety knowledge will benefit to personal life.	160 (100%)
Food safety knowledge will benefit to consumers.	158 (98.8%)
Safe food handling is an important part of your job responsibility.	136 (85%)
Using cleaning and sanitizing chemicals for food contact machines	84 (52.5%)
Eating and drinking at working hours	138 (86.3%)
Smoking at workplace should be avoided	147 (91.9 %)
Paper/polythene packs are unsafe for food packaging	90 (56.2%)
Average positive attitude towards food handling	***81.5%***
Average positive attitude towards general food safety = 74.7%	

Source: Author's computation and regression result using STATA 16.

4.1.2.1. Food Safety Practice Assessment Result

Taking into account and acting accordingly for food handling acts/operations, food stall details is necessarily. Environment around the stall, personal hygiene, food storage facilities at the stall, utensil maintenance and licensing issues are the main gaps to be looked into to intervene the food safety challenges of the street food. This is essential and need to be practiced to encounter related food borne illnesses of consumers. Although the indicators in the following table are actions to be taken every day in the workplace, 82% of respondents practiced only for handwashing before food preparation. Based on the responses, appropriate practice of our respondents was poor. This showed a significant food safety gap and risk upon preparing, cooking, handling and servicing of street foods.

Table 4-4 Food safety practice of street food vendors (n=160)

Practice Indicators	No (%)
Personal Hygiene	
Using soaps/detergents to wash hands.	70 (43.8%)
Washing hands before preparing food.	131 (81.9%)
Washing hands before touching unwrapped raw foods.	14 (8.8%)
Washing hands after touching unwrapped raw foods.	12 (7.5%)
Washing hands after touching prepared foods.	6 (3.8%)
Washing hands after going to toilet.	70 (43.8%)
Washing hands before using gloves.	3 (1.9%)
Using apron at work daily.	35 (21.9%)
Using mask at work daily.	8 (5%)
Using cap at work daily.	16 (10%)
Using gloves at work daily.	14 (8.8%)
Using a tissue/cloth when coughing or sneezing.	5 (3.1%)
Using jewelries and wearing watch while working.	9 (5.6%)
Keeping nails short and clean	7 (4.4%)
Handling foods at work while having diarrhea.	50 (31.2%)
Average appropriate practice in personal hygiene	***18.7%***
Food handling	
Cleaning the work area before starting work.	65 (40.7%)
Washing and sanitizing the working clothes.	11 (6.9%)
Washing and sanitizing the knife after chopping raw chicken or meat or other raw food.	11 (6.9%)
Using detergent to clean equipment.	11 (6.9%)
Eating or drinking in the workplace.	5 (3.1%)
Rubbing hands on face, hair, etc. while working.	7 (4.8%)
Average appropriate practice in food handling	***10.8%***
Average appropriate practice in general food safety = 14.8%	

Source: Author's computation and regression result using STATA 16.

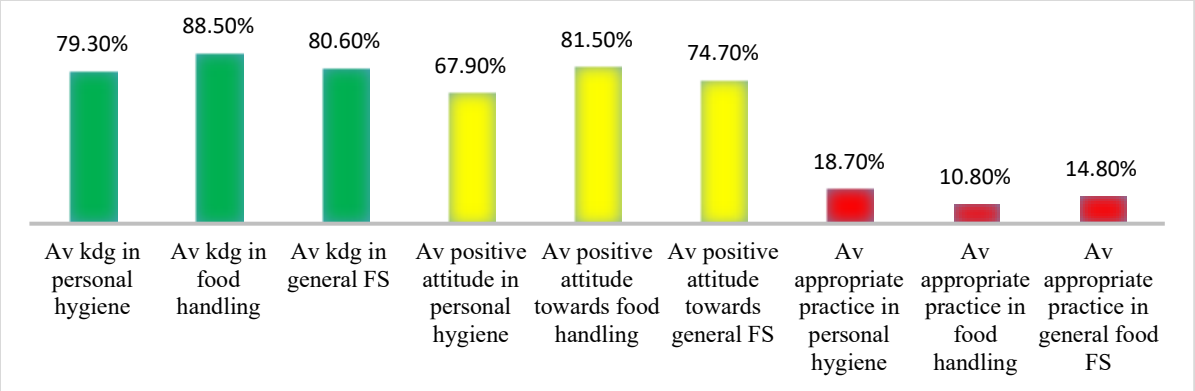


Figure 4-1KAP Analysis Result Summary

Food safety KAP status of SFVs result had shown variations between knowledge, attitude and practice in the study area of the street food operation. For most of the indicators of food safety knowledge (88.5 %) and attitude (81.5%), have no significant differences and these scores were high and better attainments than other presentations of similar studies conducted in Maseru Lesotho (Letuka et al, 2019) and in Jashore, Bangladesh (Hossen et al, 2020).

Knowledge of street food vendors in personal hygiene and cleaning was good (94%-98%). Knowledge in proper food handling was, however, slightly moderate (68%). Street food vendors also had very positive attitude towards maintaining food safety (95%). Positive attitude towards personal hygiene was also good (84%). This was a challenge to the safety of street foods business in the study area. Other similar studies conducted in Vietnam and Bangladesh, revealed that unhygienic practices were observed in street foods operation. Knowledge, attitude and practice of street food vendors is crucial to the safety of the food they prepare for sale. However, food safety practice is not only food safety knowledge and attitude towards food safety, but also because of other factors like government involvement, identified and suitable streets and access for credit and training which had been supported by the key informant's interview assessment result (see 4.3).

4.1.3. Correlation of dependent and independent variables

Table 4-5 Correlation of knowledge and independent variables

Ordered logistic regression — Number of obs = 160; LR chi2(13) = 10.86; Prob > chi2 = 0.6223; Log likelihood = -427.67041; Pseudo R2 = 0.0125

KFST	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
SEXSFVs						
Male	.9716126	.3267487	-0.09	0.932	.502618	1.878228
AGESFVs						
19-35 Years	.6682261	.2347128	-1.15	0.251	.335692	1.330166
36-49 Years	.8995183	.687163	-0.14	0.890	.2012599	4.02034
MARSTATUS						
Married	1.342032	.5435215	0.73	0.468	.6067742	2.968237
Divorsed	1.213621	.6393305	0.37	0.713	.4321891	3.407945
Widowed	.9081404	1.007749	-0.08	0.936	.0960169	9.49952
Separated	1.774499	2.004234	0.51	0.612	.1939427	16.23596
FAMSIZE	1.0587	.1918612	0.31	0.753	.7421899	1.510186
EDUSTATUS	1.112349	.2175894	0.54	0.586	.7581156	1.6321
EXPERIENCE	1.070144	.1178829	0.62	0.538	.8623369	1.328028
TRAINING	1.590481	1.029416	0.72	0.473	.4473014	5.655313
CREDIT	.2157864	.1846666	-1.79	0.073	.0403255	1.154699
WATERACCESS	.5211918	.5623659	-0.60	0.546	.0620856	4.319604

Source: Author's computation and regression result using STATA 16

Moreover, from the above STATA tables, none of the independent variables has no direct effect on the food safety knowledge of street food vendors in the study area. However, in the similar research conducted in Maseru, Lesotho (Letuka et al, 2019), food safety training showed direct effect on food safety knowledge of street food vendors. In addition to training, education had also direct effect on the food safety knowledge and food safety attitude of street food vendors in similar study conducted in Jashore, Bangladish (Hossen et al, 2020). Since only less than 15% of street food vendors got training and credit, they did not show any significant association with food safety knowledge. However, in similar research conducted in Maseru, Lesotho (Letuka et al, 2019), food safety training had significant effect on food safety knowledge of street food vendors. In addition to training, education had also direct effect on the food safety knowledge and attitude of street food vendors in similar study conducted in Jashore, Bangladish (Hossen et al, 2020).

Table 4-6 Correlation of Food Safety Attitude of Vendors and Independent Variables

Ordered logistic regression — Number of obs = 160; LR chi2(13) = 19.00; Prob > chi2 = 0.1231; Log likelihood = -464.58925; Pseudo R2 = 0.0200

AFST	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
SEXSFVs						
Male	-.3498194	.3261399	-1.07	0.283	-.989042	.2894031
AGESFVs						
19-35 Years	-.0211911	.334084	-0.06	0.949	-.6759838	.6336015
35-49 Years	1.437529	.7676661	1.87	0.061	-.0670692	2.942127
MARSTATUS						
Married	-.5876717	.3950922	-1.49	0.137	-1.362038	.1866949
Divorsed	-1.03596	.5482362	-1.89	0.059	-2.110483	.0385632
Widowed	-2.318542	1.445323	-1.60	0.109	-5.151323	.5142399
Separated	-1.628685	1.095301	-1.49	0.137	-3.775436	.5180667
FAMSIZE	-.0966603	.1764438	-0.55	0.584	-.4424838	.2491633
EDUSTATUS	-.1726405	.190759	-0.91	0.365	-.5465213	.2012404
EXPERIENCE	-.0053507	.1086459	-0.05	0.961	-.2182927	.2075913
TRAINING	-.0512408	.672856	-0.08	0.939	-1.370014	1.267533
CREDIT	.8493499	.8422495	1.01	0.313	-.8014288	2.500129
WATERACCESS	-1.735813	1.175496	-1.48	0.140	-4.039743	.568118

Source: Author's computation and regression result using STATA 16

As shown from the table above, marital status specifically divorce has negative effect towards food safety attitude of street food vendors. However, no significant correlation was found between food safety attitude with and independent variables of sex, age, family size, educational status, experience, training, credit, and water access. However, in similar research conducted in Jashore, Bangladish (Hossen et al, 2020), education had direct and significant effect on the food safety attitude of street food vendors.

Table 4-7 Correlation of Food Safety Practice and independent variables

Ordered logistic regression — Number of obs = 160; LR chi2(13) = 9.35; Prob > chi2 = 0.7460; Log likelihood = -433.14001; Pseudo R2 = 0.0107

PFST	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
SEXSFVs						
Male	.3099161	.3214935	0.96	0.335	-.3201996	.9400317
AGESFVs						
19-35 Years	-.3183172	.3415879	-0.93	0.351	-.9878171	.3511827
35-49 Years	-.3702127	.6552425	-0.57	0.572	-1.654464	.9140391
MARSTATUS						
Married	.0835739	.4026779	0.21	0.836	-.7056604	.8728081
Divorsed	.439769	.554634	0.79	0.428	-.6472937	1.526832
Widowed	-1.832274	1.126435	-1.63	0.104	-4.040047	.3754987
Separated	.696454	1.075107	0.65	0.517	-1.410717	2.803625
FAMSIZE	-.0209293	.1788019	-0.12	0.907	-.3713746	.3295159
EDUSTATUS	-.1950417	.1999044	-0.98	0.329	-.586847	.1967637
EXPERIENCE	.1326687	.1110677	1.19	0.232	-.0850199	.3503574
TRAINING	-.2243416	.7732534	-0.29	0.772	-1.73989	1.291207
CREDIT	-.1249419	.8994705	-0.14	0.890	-1.887872	1.637988
WATERACCESS	.6070506	1.077344	0.56	0.573	-1.504506	2.718607

Source: Author's computation and regression result using STATA 16

As shown from the table above, all independent variables, have not significant effect on food safety practice and this was due to the multidimensional characteristics of street food business in the study area such as financial status, environment where it had been operated, government regulation and other factors. Similarly, the food safety had no significant correlations with age, marital status, educational status, and credit though insignificant it is. This was not compatible with similar studies conducted in Bangladesh, Jashore and in China in Handan city.

4.1.4. Assessments Result for Factors That Cause Street Food Unsafe

Based on the remarks by most of the studies done across the world, and in Sub–Saharan Africa, key informants arranged factors that affect in order based on their importance. Accordingly, those factors causing the street food were organized and as below.

- Absence of hygiene and sanitation facilities; - facilities like water, hand washing detergent and liquid and solid waste disposal.
- No zoning pattern for street food vending; - identified and protected streets for street food vending.
- Absence of government control; - regulating like other food establishments.
- Lack of support for startup capital; - to join the business and get the required materials.
- Government bureaucracy: -Woreda government officials approve installing vending stalls one time and reject it another time by another official. Thus, the five indicators were ranked in priority as below.

Table 4-2 Rank of indicators that cause the street food most unsafe

Indicators	**1st**	**2nd**	**3rd**	**4th**	**5th**
Absence of hygiene and sanitation facilities	2 (9.5%)	-	-	13(61.9%)	6 (28.6%)
No zoning pattern for Street Food vending	5(23.8%)	15(71.4%)	-	1 (4.7%)	-
Absence of government control	13(61.9%)	6 (28.6%)	2 (9.5%)	-	-
Lack of support for startup capital	-	-	16(81.0%)	2 (9.5%)	2 (9.5%)
Government bureaucracy	-	-	2 (9.5%)	5(23.8%)	14(66.7%)

Absence of government control was identified by 57% of key informants to be responsible for danger posed by food safety in street food vending business. This was followed by absence of zoning pattern (71.4%) for street food vending. These were followed lack of start up capital (81%). Thus, these three factors were considered as those which possibly can make street foods street foods most unsafe.

4.1.4.1. Key informants interview assessment result

Key informants ,from relevent Woreda 5 officers dealt with health, economical (occupational), consumers and governance issues had the following opinions about street food vending.

A health extension worker said "the environment is unsafe due to dust raised by passing by vehicles and flies that breed around sites not far from the vending stalls as open defecation occurred during the night time. Moreover, no hand wash facility was available for both vendors and consumers for half day SF vendors especially having identified area without stalls".

Another informant working on Small and Medium Enterprises said " for urban poor vendors, street food vending is a means of income and for low-paid employees, it is a cheap source of food. However, since street food vending is seen as informal business, vendors are not registred for further developments and do not get any training or credit support.

A consumer of street foods had the following to say "the urban poor like us cannot do without street foods as food price is increasing and getting food from other sources is unaffordable. No one from amongst us is conerned about hygiene in or around the vending stalls. Most important to us is getting affordable food".

A Woreda 5 regulatory officer said " one Woreda offical allows shelters made from plastic covers for street food vending along the streets and when he is replaced by another offical, the new one reverts the decision and orders us to confiscate all goods sold along the street. However, compared to vendors of other goods, we allow street food vendors as it is a source of food for us, as well.

4.1.5. Household's Food Security Status (HFIAS)

4.1.5.1. HFIAS results

The below table shows Household Food Insecurity Access Scale (HFIAS) Generic Questions Each of the questions in the following table is asked with a recall period of four weeks (30 days). The respondent is first asked an occurrence question – that is, whether the condition in the question happened at all in the past four weeks (yes or no). If the respondent answers "yes" to an occurrence question, a frequency-of-occurrence question is asked to determine whether the condition happened rarely (once or twice), sometimes (three to ten times) or often (more than ten times) in the past four weeks.

The HFIAS indicator classifies households into four levels of household food insecurity; food security, mild, moderate and severe food insecurity. Families are rated as increasingly food insecure as they respond more affirmatively to more severe conditions and/or experience these conditions more frequently. A food insecure household experiences none of the conditions of food insecurity, or is only concerned about them, but rarely. A mildly food insecure household is concerned that sometimes or often there is not enough to eat and/or cannot eat favorite foods and/or eats a more monotonous diet than desired and/or some foods are considered undesirable, but only rarely. But it doesn't reduce the amount, and it doesn't have any of the three most serious conditions (going without food, going to bed hungry, or going without food for a full day and night). A moderately precarious household is more likely to sacrifice quality by eating a monotonous diet or junk foods sometimes or often, and/or has begun to reduce quantity by reducing meal size or the number of meals rarely or sometimes. But he knows none of the three most severe conditions. A household with high levels of food insecurity has often reduced the size or number of meals and/or is suffering from one of the three main illnesses (lack of food, going to bed hungry or not eating for a day and a night).), even as rare. In other words, any household suffering from one of these three conditions at least once in the last four weeks (30 days) is considered to be severely food insecure (Coates et al., 2007).

Using HFIAS, respondents were asked if they had experienced any health problem in the past month (four weeks). Accordingly, the HFIAS indicator categorizes households into four levels of household food insecurity. Based on this, the findings of the study showed that there were no food secure households of street food vendors and those who were mildly food insecure made up only a small proportion (8.1%). Most households were either moderately food insecure (68.1%) or severely food insecure (23.8%). This showed that 100% of the street food venders in the study area were worse levels of food insecurity.

Table 4-3 Food security status of street food vender's household heads

Food security status	**Frequency**	**Percentage %**
Food secure	0	-
Mildly food insecure	13	*8.1*
Moderately food insecure	109	*68.1*
Severely food insecure	38	*23.8*
Totally	160	*100%*

Source: Author's regression result using STATA 16

Table 4-10 HFIAS Food insecurity experiences of vendors households in the study area (n=160) during the previous four weeks

Food insecurity experiences	Occurrence		Frequency		
	Yes	No	Rarely	Sometimes	Often
1. In the past four weeks, did you worry that your household would not have enough food?	160 (100%)	-	-	160 (100%)	0(0%)
2. In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	160 (100%)	-	-	160 (100%)	0(0%)
3. In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	160 (100%)	-	-	160 (100%)	0(0%)
4. In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	160 (100%)	-	-	156 (97.5%)	4(2.5%)
5. In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	160 (100%)	-	-	133 (83.1%)	27 (16.9%)
6. In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	160 (100%)	-	-	156 (97.5%)	4 (2.5%)
7. In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	123 (76.8%)	37 (23.2%)	-	119 (74.4%)	4 (2.5%)
8. In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	15(9.4%)	145 (80.6%)	-	15 (9.4%)	-
9. In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	-	160 (100%)	-	-	-

5. CHAPTER FIVE

5.1. CONCLUSION AND RECOMMENDATION

5.1.1. Conclusions

As demonstrated from the socio demographic analysis data, the street food vendors had been engaged regardless of their sex, age, marital status, education level and other factors. In addition, there were new comers joined the street food vending business below 6 months of experiences as well as with age groups of below 18 years. This shows the street food business is continuously growing and getting employment for urban poor. Despite of many challenges they had been faced, it was an opportunity that 97.8% of street food vendors in the study area attained primary and above education. This is an enabling condition for them they would be able to understand and implement accordingly if they get access for food safety trainings and credit for startup capital so far with government regulations.

However, those vendors who had had the training and credit access were only 13.3% and 7.3% respectively which confirms lack of governmental and private support and concern no matter what the SF industry is growing, contributing to unemployment, and having great role to the urban dimension food security in general.

The food safety practice analysis result demonstrates that knowledge and attitude score of SFVs was 74.5% and 72.5 % respectively. Nevertheless, only 15.5% of SFVs have attained for food safety practices which shows 84.5% of SFVs are in a poor food safety practice that may result to the illness and further health complications of consumers. Therefore, Among KAPs, the significantly hindering street food safety practice in the study area was food safety practice, indicating that there were other causing factors other than knowledge and attitude towards food safety. Fortunately, other causing factors were analyzed via key informants and interested groups selected among them. Therefore, this study had identified and demonstrated factors that cause the street food most unsafe and those factors were lack of government control that leads vendors not to be responsible and accountable encountering the health risk of their consumers regardless of the market they get, absence of zoning pattern for SF vending operation which increases exposures for contaminants and cross contaminants and get difficulty of managing vendors and the third rated factor was lack of startup capital which can address the absence of institutions concerned for this

emerging industry.in addition to this the key informant interview assessment result discussed above had directly touched this causing factors conforming that without getting solved the above factors, will lead to food borne illnesses to consumers and also could impact the SF business negatively at large.

Similar result was observed in Jashore region, Bangladesh (Md. Toufik Hossen et al,2020) that SFVs require beyond knowledge and attitude to implement what they know and attitude towards food safety of street food. Most importantly this study had taken it into account and found the factors that cause it most unsafe. These were, absence of government control, absence of zoning pattern for street food operation and lack of startup capital. Moreover, it had been supported by the key interested groups, the four purposely selected among 21 key informants.

5.1.2. Recommendation

As this study had resulted mainly the gaps among KAP and factors that cause the street most unsafe, attention should be given to address the gaps and better see in depth for the root cause that cause it to happen. Accordingly, the food safety practice level of street food vendors in the study area was demonstrated very low performance showing that vendors were observed below the average which needs immediate government attention.

Therefore, the government should understand the role of street food for food and nutrition security and livelihood specifically and its multidimensional importance of economic, social, political and psychological particularly to the urban dimension so that play its part. Also, the government involvement will encourage and lead to the involvement of other institutions so that challenges of the emerging industry (SF) get analyzed through compiling previous similar studies and specifically using this study that had addressed more issues that would impact either ways of encourage or discourage the business growth.

Accordingly, getting SFVs registered and licensed, enables the management of the street food business smooth via discouraging the mobile SFVs and encouraging providing supports for stationary street foods is a mile stone one step ahead for the safety of street foods. As a result of this, the government should control street food vending operations via registering, licensing, providing identified and zoned streets which can enable installing common hygienic facilities incorporated with municipal system. On top of this, would be a breakthrough to attract other

institutions who can support the street food business for credit, training and other access opportunities.

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ANNEX I; ENGLSH VERSION OF QUESTIONARIES

Consent format

The overriding objective of this questionnaire is to collect the food safety knowledge, attitude and practice of street food vendors in woreda 5 of Kirkos sub city and in neighboring streets of **Mexico roundabout**. The data collected will be used to identify the food safety gaps and associated risks to consumers and SF vendors and its impact to the food security of the urban poor at large. Therefore, your responses to the questionnaires are valuable and will be held utmost confidential and will be used only to make analysis of this research. If you agree to contribute by responding the right information and/or observation, you will be treated as a volunteer with no monetary refunds. You are also free to refuse to respond for any question you are no comfortable of and to withdraw from the research too. This questionnaire will take about ---------hour to respond to the questions.

A. Assessment of statistical data

Gender, age, education, income, food safety training, and specific elements related to the work experience of suppliers.

Questions	Answers	Code
Sex		female=1, male =2
Age		≥18=1, 19-35=2, >35=3
Marital status		1=married, 2=Single, 3=divorced, 4=widowed, 5= separated
Family seizes		
Education		Not attended formal education=1, 1-8 =2, 9-12=3, Diploma =4, others=5
Experience on the job		

B. Assessment of the Food Safety Knowledge of SF Vendors

Question	Answer			Code
	Strongly agree	Agree	Disagree	
Washing hands regularly before work is one part of personal hygiene.				Strongly agree =1, Agree =2 Disagree=3
Washing hands regularly after work is one part of personal hygiene.				“ ”
Proper hand Washing using soap reduces risk of food contamination				“ ”
Washing hands with only water can’t clean enough				“ ”

Wearing apron, mask, gloves, and caps is part of personal hygiene.				“ ”
Wearing gloves regularly while starting work is part of personal hygiene.				“ ”
Wearing hair cover is one part of personal hygiene				“ ”
Workers should avoid touching their hair after washing hands				“ ”
Eating and drinking in the workplace increase the risk of food contamination				“ ”
Proper cleaning and handling of instruments reduces the risk of food contamination				“ ”
Worker cannot have long nails and make coloring it.				“ ”
Use of gloves reduces the risk of transmitting infection to consumers.				“ ”
Broken gloves need to be changed with new ones.				“ ”
Cleaning equipment after work can reduce cross contamination.				“ ”
Using hot water to clean equipment still decreases risk of contamination				“ ”
Separating dirty zone from clean zone can reduce cross contamination				“ ”
Contaminated foods always have some change in color, odor or taste.				“ ”
Reuse of oil is dangerous for health				“ ”
Reheating cooked foods can contribute to food contamination.				“ ”
Paper/polythene packs are unsafe for food packaging.				

C. Assessment of Food safety attitude of SF vendors.

Question	Answer			Code
	Poor	Good	V. good	
Food safety knowledge will benefit to personal life.				Poor= 1, Good= 2, V. good=3
Food safety knowledge will benefit to consumers.				“ ”
Safe food handling is an important part of your job responsibility.				“ ”
Washing hands before handling food reduces risk of food poisoning.				“ ”
Washing hands before touching non-packed foods reduces contamination of food				“ ”
Not washing hands after touching non-packed foods contaminates food and risk consumers health				“ ”
Using soap for hand washing ensures safety of food				“ ”
Nails are short and clean to reduce the risk of food contamination.				“ ”
Washing hands after touching ready foods ensures safety of food				“ ”
if diarrhea is a case, continuing work is very serious causing food borne illness.				“ ”
Not Cleaning the working environment before commencing a job cause to cross contamination of food				“ ”
Washing hand after toilet reduces risk of food borne illnesses				“ ”
Using apron is important in reducing risk of food contamination				“ ”
Using mask is important in reducing risk of food contamination.				“ ”
Using hair cover is important in reducing risk of food contamination.				“ ”

Using gloves is important in reducing risk of food contamination.				“ ”
Washing hands before wearing gloves reduces contamination of food				“ ”
Cleaning and sanitizing aprons protect contamination of foods.				“ ”
Masking while sneezing and coughing reduce contamination of food				“ ”
Raw and cooked foods should be stored separately to reduce the risk of food contamination.				
Using cleaning and sanitizing chemicals for food contact machines ensures cleanliness of it				
Eating and drinking at working hours is a means of food contamination				
Wearing jewelries at working hours is a means of food contamination				
Unsafe Paper/polythene packs for food packaging contaminate food				
Smoking at work place is a means of cross contamination				
Reuse of oil is harmful for health.				

D. Assessment Food safety practice of SF vendors.

Question	Answer			Code
	Always	Sometimes	Never	
Washing hands before processing food.				Always =1, Sometimes =2, Never =3
Washing hands before touching unwrapped raw foods.				“ “
Washing hands after touching unwrapped raw foods.				“ “
Using soaps/detergents to wash hands.				“ “

Keeping your nails short and remove all adornments before starting activities.				“ “
Washing hands after touching prepared foods.				“ “
Handling foods at work while having diarrhea.				“ “
Cleaning the work area before starting work.				“ “
Washing hands after going to toilet.				“ “
Using apron at work daily.				“ “
Using mask at work daily				“ “
Using cap at work daily.				“ “
Using gloves at work daily.				“ “
Washing hands before using gloves.				“ “
Washing and sanitizing the working clothes.				“ “
Using a tissue/cloth when coughing or sneezing.				“ “
Washing and sanitizing the knife after chopping raw chicken or meat or other raw food.				“ “
Using detergent to clean equipment.				“ “
Eating or drinking in the workplace.				“ “
Using jewelries and wearing watch while working.				“ “
Rubbing hands on face, hair, etc. while working.				“ “
Smoking in workplace.				“ “
Re-use of oil.				“ “

E. Assessment of opportunities by the government and/or other institutions

Questions	Yes	No	Neutral	Code
Do you have potable water access around your stalls				
Have you ever got a credit access to start or expand this business				
Have you seen and/or heard for any institution or individual tried of providing support.				

Do you get an easy transportation access to transport the foods/equipment to your stall.				
How far is your home from your stall.				
Do you have access for hygiene and waste disposal facilities immediate to your stalls.				

F. HFIAS Questions of Vendors

Table 1: Household Food Insecurity Access Scale (HFIAS) Generic Questions Each of the questions in the following table is asked with a recall period of four weeks (30 days).

The respondent is first asked an occurrence question – that is, whether the condition in the question happened at all in the past four weeks (yes or no). If the respondent answers "yes" to an occurrence question, a frequency-of-occurrence question is asked to determine whether the condition happened rarely (once or twice), sometimes (three to ten times) or often (more than ten times) in the past four weeks.

Example: 1. In the past four weeks, did you worry that your household would not have enough food?

0 = No (skip to Q2)

1 = Yes

1.a. How often did this happen?

1 = Rarely (once or twice in the past four weeks)

2 = Sometimes (three to ten times in the past four weeks)

3 = Often (more than ten times in the past four weeks)

No.	Occurrence Questions
1	In the past four weeks, did you worry that your household would not have enough food?
2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?
3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?
4	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?
5	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?
6	In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?
7	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?
8	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?
9	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?

G. Questions Key Informant Interview Questions

1. What is your view about the hygiene of street foods delivered here around?
2. What is your observation for the cleanliness of equipment's used?
3. What factors do you think contribute for the contamination of street foods?
4. What is your observation for the personal hygiene of street food vendors?
5. Did you believe that the street food sector contributes to ensure food security of the urban poor?
6. What did you suggest about street foods vending operation?
7. Which of the following factors do you think that causes the street food most unsafe here around and how do you rate sequence?

Factors that cause the street food most unsafe (sequentially)						
Indicators	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Remark**
Absence of hygiene and sanitation facilities						
No zoning pattern for Street Food vending						
Absence of government control						
Lack of support for startup capital						
Government bureaucracy						

ANNEX II; የቃለ መጠይቆች የአማርኛ ቅጅ

<u>የስምምነት ቅጽ</u>

የተከበሩ የዚህ መጠይቅ ተሳታፊ፡-

የዚህ መጠይቅ አጠቃላይ አላማ በሜክሲኮ አደባባይ እና አጎራባች ጎዳናዎች የመንግድ ላይ ምግብ አቅራቢዎችን የምግብ ደህንነት እውቀት ፣አመለካከት እና አተገባበር ልምድ መረጃ ለመሰብሰብ ያተኮረ ነው፡፡

የዚህ መረጃ መሰብሰብ የመንግድ ላይ ምግቦችን የምግ ደህንነት እና ለተጠቃሚዎች ሊያስከትሉ የሚችሉትን የጤና ችግር መለየት እና ይህን የሚጠቀሙ አነስተኛ እና መካከለኛ ገቢ ያላቸው የከተማው ነዋሪዎች ላይ የሚፈጥረውን የምግብ ዋስትና ተግዳሮት ለማጥናት ነው፡፡

ስለዚህ ለዚህ መጠይቅ የእርስዎ ምላሽ ያለው ዋጋ በጣም ከፍተኛ ስለሆነ የእርሶ ምላሽ በከፍተኛ ጥንቃቄ እና ምስጢራዊነቱ የሚጠበቅ እና ለዚህ ጥናት ብቻ አገልግሎት የሚሰጥ መሆኑን በአፅንኦት እገልጻለሁ፡፡

በዚሁ መልኩ ያለዎትን ትክክለኛ ግንዛቤ እና እይታ በመስጠት ትብብሮዎን ካረጋገጡ እንደ በጎ ፈቃደኛ የሚወሰዱ እና ለሚሰጡት መረጃ ምንም አይነት ገንዘብ የማይከፈል መሆኑን እገልጻለሁ፡፡ እርሶም የማያምኑበት ጥያቄ ካለ ላለመመለስ ምንም የሚያግዶት ነገር ስለሌለ በነጻነት ጥያቄውን አለመመለስ ይችላሉ፡፡ ይህን ቃለ መጠይቅ ለመጨረስ እስከ ግማሽ ሰዓት ድረስ የሚወስድ መሆኑን እገልጻለሁ፡፡

መረጃውን የሰበሰበው፡-

ስም ፡_____

ፊርማ፡_____

ቀን፡_____

የቃለ መጠይቁ ተሳታፊ ፊርማ ፡_____

ክፍል 1	ጥያቄዎች	መልሶች	መለያ
የመንገድ ላይ ምግብ አቅራቢዎች የስነ ህዝብና ማህበራዊ ጉዳዮች	ጾታ		ሴት=1, ወንድ =2
	ዕድሜ		≥18=1, 19-35=2, >35=3
	የጋብቻ ሁኔታ		1=ያገባ/ች፣2=ያላገባ/ች፣3=የፈታ/ች፣4.=ባሏ የሞተባት ፣ 5= ሚስቱ የሞተችበት
	የቤተሰብ ብዛት		
	የትምህርት ደረጃ		ከ1-8 ፣ ከ9-12፣ ዲፕሎማ እና ከዛ በላይ
	ይህን ስራ ከጀመሩ ምን ያክል ጊዜ ይሆንወታል		
	የመንግድ ላይ ምግቦችን መስራት ከመጀመርዎ በፊት በምን ይተዳደሩ ነበር		

ክፍል 2	ጥያቄ	መልስ			መለያ
		በጣም እስማማለሁ	እስማማለሁ	አልስማማም	
የመንገድ ላይ ምግብ አዘጋጆች ስለምግብ ደህንነት ያለቸውን እውቀት መለካት	ሁልጊዜ ስራ ከመጀመር በፊት እጅን መታጠብ አንዱ እና መሰረታዊ የግል ንጽህና መርህ ነው				በጣም እስማማለሁ=1 ፣እስማማለሁ=2 አልስማማም=3
	ዘወትር ከስራ በኋላ እጅን መታጠብ አንዱ እና መሰረታዊ የግል ንጽህና መርህ ነው				“ ”
	እጅን በሳሙና በደንብ መታጠብ የምናዘጋጀው ምግብ እንዳይበከል ያግዛል				“ ”
	እጅን በውሀ ብቻ በመታጠብ እጃችንን በሚፈለገው መልኩ ማጽዳት አያስችልም				“ ”
	ስራ ስንጀምር ዘወትር ሽርጥ መልበስ፣ ማስክ ፣ ጓንት እና የፀጉር መሸፈኛ ማድረግ የግል ንጽህና አካል ናቸው				“ ”
	ስራ ስንጀምር ዘወትር ጓንት ማድረግ የግል ንጽህና አካል ነው				“ ”
	ስራ ስንጀምር ዘወትር የፀጉር መሸፈኛ ማድረግ የግል ንጽህና አካል ነው				“ ”
	ከምግብ ጋር በቀጥታም ሆነ በተዘዋዋሪ ንክኪ ያላቸው ሰራተኞች እጃቸውን ከታጠቡ በኋላ ጸጉር መነካካትን ማስወገድ አለባቸው				“ ”
	በስራ ቦታ ምግብ መመገብ የምግብን መበከል ያባብሳል				“ ”

	ለምግብ ዝግጅት የምንጠቀምባቸውን መሳሪያወች በአግባቡ ማጽዳት እና መያዝ የምግብ መበከልን ይቀንሳል				“ ”
	ምግብ የሚያዘጋጅ ሰራተኛ የእጅ ጥፍር ማሳደግ እና የጥፍር ቀለም መቀባት የተከለከለ ነው				“ ”
	ጓንት መጠቀም ለተጠቃሚዎች ኢንፌክሽን የመተላለፍ አደጋን ይቀንሳል				“ ”
	የተቀደዱ ጓንቶችን ወዲየውኑ በአዲስ መቀየር ያስፈልጋቸዋል				“ ”
	ከስራ በኋላ የጽዳት እቃዎች መስቀል ብክለት ሊያመጣ የሚችለዉን አደጋ ሊቀንስ ይችላል				“ ”
	መሳሪያዎችን ለማጽዳት የሞቀ ዉሀ መጠቀም አሁንም የብክለት ስጋትን ይቀንሳል				“ ”
	የስራ አካባቢን ጽዱ እና ቆሻሻ ብሎ መለየት የምግብ መበከልን ይቀንሳል				“ ”
	የተበከሉ ምግቦች ሁል ጊዜ በቀለም፣በሽታ እና በጣእም ላይ የተወሰነ ለዉጥ አላቸው				“ ”
	ዘይት እንደገና ጥቅም ላይ ማዋል ለጤና አደገኛ ነው				“ ”
	የበሰሉ ምግቦችን አሙቆ መመገብ ለምግብ መበከል አስተዋጽኦ ያደርጋል				“ ”

ክፍል 3	**ጥያቄ**	**መልስ**			**መለያ**
		ዝቅተኛ(%)	መካከለ (%)	ከፍተኛ (%)	
የምግብ አዘጋጆች ስለ ምግብ ደህንነት ያላቸውን	ምግብ ማዘጋጀት ከመጀመራችን በፊት እጅ ስለመታጠብ ያለው አመለካከት				ዝቅተኛ=1፤መካከለኛ= 2፤ከፍተኛ=3
	ያልታሸጉ ምግቦችን በእጃችን ከመንካታችን በፊት እጅ ስለመታጠብ ያለው አመለካከት				“ ”
	ያልታሸጉ ምግቦችን በእጃችን ከነኩ በኋላ እጅ ስለመታጠብ ያለው አመለካከት				“ ”
	በእጅ መታጠብ ጊዜ ሳሙና ስለመጠቀም ያለው አመለካከት				“ ”
	ስራ ከመጀመራችን በፊት ጥፍርን ማሳጠር እና ማነኛውንም ጌጣጌጦች ማስወገድ ያለው አመለካከት				“ ”
	የተዘጋጁ ምግቦችን ከነካን በኃላ ከመጀመራችን በፊት እጅ ስለመታጠብ ያለው አመለካከት				“ ”
	የተቅማት በሽታ ሲከሰት ከምግብ ዝግጅት ጋር እንዴት ይታያል				“ ”

አመለካከት ማየት/መለካት	ስራ ከመጀመሩ በፊት የስራ አካካባቢን ስለማጽዳት				“ ”
	መጸዳጃ ቤት ከተጠቀምን በኃላ እጅ ስለመታጠብ ያለው አመለካከት				“ ”
	በየዕለቱ በስራ ሰዓት ጋወን/ሽርጥ መልበስ				“ ”
	በየዕለቱ በስራ ሰዓት የአፍ መሸፈኛ ማድረግ በተመለከተ				“ ”
	በየዕለቱ በስራ ሰዓት የጸጉር መሸፈኛ ማድረግን በተመለከተ				“ ”
	በየዕለቱ በስራ ሰዓት ጓንት ማድረግ				“ ”
	ጓንት ከማድረጋችን በፊት እጅ መታጠብ				“ ”
	የስራ ልብሶችን ማጠብ እና ማከም/ማጽዳትን በተመለከተ				“ ”
	በስራ ሰኣት ስናስነጥስ ወይም ስናስል አፍን መሸፈንን በተመለከተ				“ ”
	ያልበሰሉ ምግበቦችን እንደ ከከተፍን በኃላ ቢላዋውን ስላማጠብ				“ ”
	ማሽኖችን በማጽጃ ኬሚካሎች ስለመጠቀም				“ ”
	ስራ ቦታ ላይ መመገብ እና መጠጣትን በተመለከተ				“ ”
	ጌጣጌጦችን እና የእጅ ሰዓት ማድረግን በተመለከተ				
	በስራ ሰዓት እጅን ወይም ፊትን መታጠብን በተመለከተ				
	በስራ ቦታ ስለማጨስ				
	የተጠቀምነውን ዘይት ደግሞ ስለመጠቀም				

ክፍል 4	ጥያቄ	መልስ			**መለያ**
		ሁልጊዜ(%)	አልፎአልፎ (%)	በፍጹም (%)	ሁልጊዜ=1፣አልፎአልፎ=2፣በፍጹም =3
	ምግብ ማዘጋጀት ከመጀመራችን በፊት እጅ መታጠብ				
	ያልታሸጉ ምግቦችን ከመንካታችን በፊት እጅ መታጠብ				
	ያልታሸጉ እና ያልበሰሉ ምግቦችን ከነካን በኃላ እጅ መታጠብ				
	እጅ ለመታጠብ ሳሙና መጠቀም				

የምግብ አዘጋጆች ስለ ምግብ ደህንነት ያላቸው ልምምድ	ስራ ከመጀመራችን በፊት ጥፍሮቻችንን ማሳጠር እና ጌጣጌጦችን ማስወገድ				
	የተዘጋጁ ምግቦችን ከነካን በኃላ እጅ መታጠብ				
	ምግብ እያዘጋጀን የተቅማት ህመም ቢከሰት ስራ ማቆም				
	ስራ ከመጀመራችን በፊት የስራ አካባቢን ማጽዳት				
	መጸዳጃ ቤት ከተጠቀምን በኃላ እጅ መታጠብ				
	በየዕለቱ በስራ ሰዓት ጋወን/ሽርጥ መልበስ				
	በየዕለቱ በስራ ሰዓት የአፍ መሸፈኛ ማድረግ				
	በየዕለቱ በስራ ሰዓት የጸጉር መሸፈኛ ማድረግ				
	በየዕለቱ በስራ ሰዓት ጓንት ማድረግ				
	ጓንት ከማድረጋችን በፊት እጅ መታጠብ				
	የስራ ልብሶችን ማጠብ እና ማከም/ማጽዳት				
	በስራ ሰዓት ስናስነጥስ ወይም ስናስል አፍን መሸፈን				
	ያልበሰሉ ምግቦችን እንደ ከከተፍን በኃላ ቢላዋውን ማጠብ				
	ማሽኖችን በማጽጃ ኬሚካሎች መጠቀም				
	ስራ ቦታ ላይ መመገብ እና መጠጣት				
	ጌጣጌጦችን እና የእጅ ሰዓት ማድረግ				
	በስራ ሰዓት እጅን ወይም ፊትን መታጠብ				
	በስራ ቦታ ስለማጨስ				
	የተጠቀምነውን ዘይት ደግሞ ስለመጠቀም				

ክፍል 6፡ የአንድ ቤተሰብ የምግብ ዋስትና አቅርቦት መጓደል መለኪያ ጥያቄዎች

መለያ፡- 0= አይደለም(ወደጥያቄ 2)፣ 1=አዎ ፣ 2=አልፎአልፎ (አንድ ወይም ሁለት ጊዜ) ፣ 3= አንዳንድ ጊዜ (3-10 ጊዜ)፣ 4=ሁል ጊዜ(ከ10 ጊዜ በላይ)

ጥያቄ	መልስ
3.1 ባለፉት አራ ሳምንታት ቤት ውስጥ በቂ ምግብ ላይኖረኝ ይችላል ብለው ሰግተው ያውቃሉ	
3.1ሀ ባለፉት አራት ሳምንታት ውስጥ ይሄ ስጋት ስንት ጊዜ ደርሶቦታል	
3.2 ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰቡ አባል የፈለጉትን/የወደዱትን ምግብ ሳይበሉ ቀርተው ያውቃሉ	
3.2ሀ ባለፉት አራት ሳምንታት ውስጥ ይሄ ስንት ጊዜ አጋጥምዎታል	
3.3 ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰቡ አባል የተወሰኑ የምግብ አይነቶች ብቻ በልታችኋል	
3.3ሀ ባለፉት አራት ሳምንታት ውስጥ ይሄ ስንት ጊዜ አጋጥምዎታል	
3.4 ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰቡ አባል መብላት የማትፈልጉትን ምግብ በልታችኋል	
3.4ሀ ባለፉት አራት ሳምንታት ውስጥ ይሄ ስንት ጊዜ አጋጥምዎታል	
3.5 ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰቡ አባል ሳትጠግቡ ለመነሳት ተገዳችኋል	
3.5ሀ ባለፉት አራት ሳምንታት ውስጥ ይሄ ስንት ጊዜ አጋጥምዎታል	
3.6 ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰቡ አባል ቁርስ ፤ ምሳ ወይም ራት መብላት ሳትችሉ ቀርታችኋል	
3.6ሀ ባለፉት አራት ሳምንታት ውስጥ ይሄ ስንት ጊዜ አጋጥምዎታል	
3.7 ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ በቤተሰቡ ውስጥ የሚላስ የሚቀመስ ያልነበረበት ጊዜ ነበር	
3.7ሀ ባለፉት አራት ሳምንታት ውስጥ ይሄ ስንት ጊዜ አጋጥምዎታል	
3.8 ባለፉት አራት ሳምንታት ቤት ውስጥ በቂ ምግብ ወይም ገንዘብ ባለመኖሩ ምክንያት እርስዎ ወይም ማንኛውም የቤተሰቡ አባል እየራበው ወደ መኝታ የሄደበት ጊዜ ነበር	

አመሰግናለሁ፡

ክፍል 7: - ለስራ መስኩ ቁልፍ ሚና ወይም መረጃ ላላቸው አካላት ሚደረግ ቃለመጠይቅ

1. እዚህ አካባቢ የሚቀርቡ የመንገድ ላይ ምግቦች ስለንጽህናቸው ምን አስተያየት አለዎት?
2. ምግብ ለማዘጋጀት እና ለማቅረብ ስለሚጠቀሟቸው ቁሳቁሶች ንጽህና ምን አስተያየት አለዎት?
3. ከዚህ አካባቢ የሚዘጋጁ የመንገድ ላይ ምግቦችን እንዲበከሉ ምክንያት ሊሆኑ ስለሚችሉ ሁኔታዎች ምን ያስባሉ?
4. የመንገድ ላይ ምግብ አዘጋጆች/አቅራቢዎች የግል ንጽህናቸውን ስለመጠበቃቸው ምን ያስባሉ
5. የመንግድ ላይ ምግብ የማቅረብ የስራ መስክ የምግብ እና የስነ-ምግብ ዋስተናን ያረጋግጣል ብለው ያስባሉ ወይስ?
6. ምን ቢደረግ/ቢሻሻል ይሄ የስራ መስክ ለብዙዎች የገቢምንጭ እና ምግብ ዋስትናን ያረጋግጣል ብለው ያስባሉ
7. ከሚከተሉት የመንገድ ላይ የምግብ ደህንነት ላለመረጋገጥ ምክንያቶችን በደረጃ የትኛው የበለጠ እና አንገብጋቢ ምክንያት ይሆናሉ ብለው ያስባሉ፤ በደረጃ ቢያስቀምጡ?

ለምግብ ደህንነት አለመረጋገጥ ምክንያቶች በቅደም ተከተል						
	1ኛ	**2ኛ**	**3ኛ**	**4ኛ**	**5ኛ**	**ምርመራ**
የንጥህና እና የጥዳት ፋሲሊቲዎች አለመኖር						
ለመንገድ ላይ ምግቦች ማቅረቢያ የተለየ፤የተካለለ እና የታወቀ ቦታ በየመንገዱ አለመኖር						
የመንግስት ቁጥጥር አለመኖር						
የስራ ማስጀመሪያ ካፒታል ድጋፍ አለመኖር						
አስቸጋሪ የመንግስት ቢሮክራሲ						

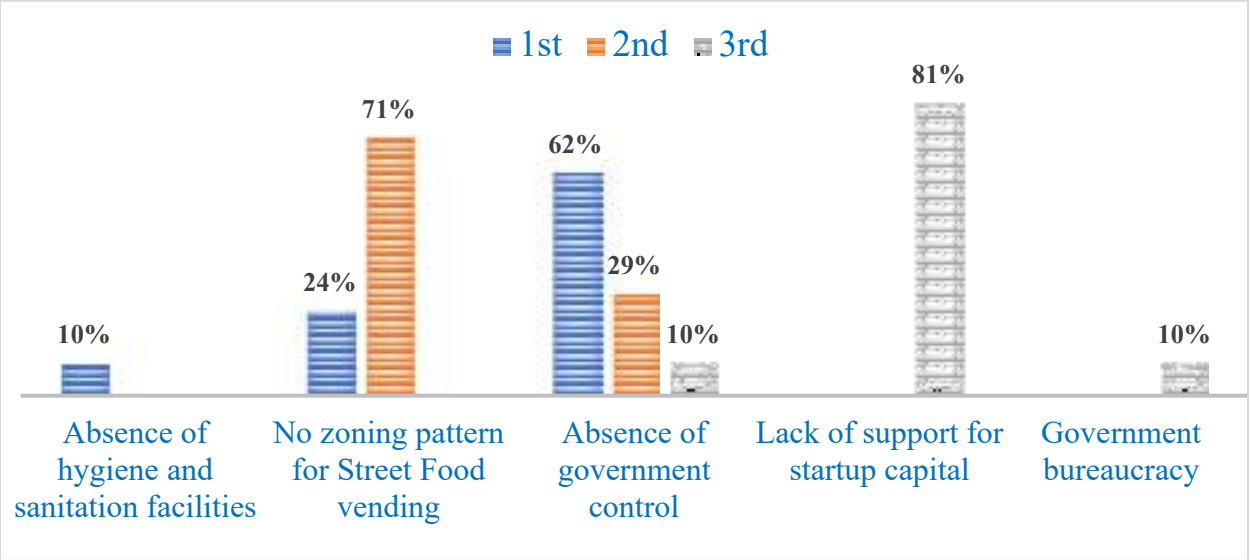
አመሰግናለሁ፡፡

APPENDIXES

Apependix1. Ethiopia street food lists that will be investigated.

#	Food Item	Descriptions	Gaps observed
1	Injera	A classic delicacy from traditional Ethiopian kitchen, this stretchy soft flatbread prepared with teff, and sourdough is truly delightful. Prepared on a clay griddle atop wood fire, these can be relished as such when enjoyed fresh and hot. They are also served with a variety of other dishes, including various wats.	Adulteration via unknown ingredients, uncontrolled process, hygiene of vendors is not controlled
2	Injera with Wat (Beyaynetu)	A very vital part of a traditional Ethiopian meal, the Ethiopian Lentil Wat is equally popular as a renowned and delicious street fare. The dish is much in demand during the Lent period, when people fast and abstain themselves from meat dishes.	uncontrolled process, either safe or deteriorated
3	Sambuusa	Finely sliced pieces of a potato fried with oil	Oil used mostly is recycled and not handled safely
4	Coffee	*Coffee* is a brewed drink prepared from roasted *coffee* beans, the seeds of berries from certain flowering plants in the Coffee genus in different set ups like inside houses, hotels and along streets.	The cleaning of equipment's, and some of them add chat floor as well
5	Macaroni	Macaroni is dry pasta shaped like narrow tubes. Made with durum wheat, macaroni is commonly cut in short lengths; curved macaroni may be referred to as elbow macaroni. Some home machines can make macaroni shapes but, like most pasta, macaroni is usually made commercially by large-scale extrusion.	Though fried, the sauce is not safely handled, vendors hygiene is not conforming
6	Pasta	Pasta is a type of food typically made from an unleavened dough of wheat flour mixed with water or eggs, and formed into sheets or other shapes, then cooked by boiling or baking sold in street foods as well.	" "
7	Ertib	A sliced potato which has been moderately fried (have a moisture)	Sensitive to hygiene of both handling and personal hygiene

Appendix 2. The First Three Ranked Factors of Key Informant Interview Analysis Result



Appendix 3. HFIAS Analysis for the three Woreda's

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. tab HFIAS Woredas,chi2
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HFIAS	Woredas Woreda 5	Woreda 6	Woreda 8	Total
Mildly Food Insecure	3	10	0	13
Moderate Food Insecur	57	32	20	109
Severely Food Insecur	25	4	9	38
Total	85	46	29	160

Pearson chi2(4) = 21.2749 Pr = 0.000


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