

**A PRELIMINARY ASSESSMENT OF RESTAURANTS AND FOOD VENDORS ON FACILITIES AND FOODS AT BARATON CENTER, NANDI COUNTY, KENYA**

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The quality of knowledge and practices of food vendors and restaurants is crucial in the control of foodborne diseases. A preliminary assessment of quality assurance in restaurant facilities and knowledge and practices of food vendors can provide information to create awareness on food health. A survey was conducted on restaurants at the Baraton Center to assess the knowledge and practices of food vendors and restaurant owners on quality assessment. The study showed that none of the hotel owners or food vendors had formal training in food handling or hotel management. A majority (99.7%) of the respondents, however, wore aprons when cooking or serving food. Only 30% of the respondents use head caps when working. None of the restaurants had in-built hand washing sinks, but majority (99.7%) had locally made water dispenser for hand washing. All of the restaurants had ordinary liquid or bar soap for handwashing but none use antibacterial soap for handwashing. No restaurant uses an antiseptic or disinfectant solution for cleaning tables and surfaces. Majority (77%) had toilets which were shared by males and females but none had separate toilets for customers. Only 4 out of 30 (13%) restaurants had refrigerators or freezers to store food. Twenty-seven percent (8 out of 30) of the restaurants had fly traps hanging from the ceiling. No restaurant had an adequate fencing facility to ward off pets and domestic animals. Only 10 out of 30 (33%) restaurants had obtained license to operate the business from the Kapsabet Municipal Council for the year 2017.

**Keywords:** Food vendors, restaurants, apron, cap, hand washing, fly traps, handwashing

sink, refrigerator

### **Introduction**

A food handler is anyone who works in a food and drink establishment and who handles food, or contact with any equipment or utensils that are likely to be in contact with food, such as cutlery, plates, bowls, or chopping boards (Scallan et al., 2011). Poor sanitation is responsible for one of the heaviest existing disease burdens worldwide. The diseases associated with poor sanitation and unsafe water account for about 10% of the global burden of disease (Prüss-Üstün, Bos, Gore, & Bartram, 2008). In this study, a preliminary assessment of food handlers and food facilities was carried out to determine the level of compliance to rules that govern food safety. Restaurants at the Baraton Center were visited and interviews were carried out using an interview guide and questionnaire. The results presented in this paper

reflect the status of the restaurants as far as food quality is concerned.

### **Statement of the Problem**

Inadequate restaurant facilities and poor food handling practices is a concern in developing countries. Food borne diseases are common in developing countries because of the prevailing poor food handling and sanitation practices, inadequate food safety laws, weak regulatory systems, lack of financial resources to invest on safer equipments, and lack of education for food handlers (Tessema, Gelaye, & Chercos, 2014). Millions of people become sick each year and thousands die after eating contaminated or mishandled foods (Garden-Robinson, 2012). Food handlers with poor personal hygiene working in food establishments could be potential sources of infections of many intestinal helminthes, protozoa, and pathogenic bacteria. Due to these concerns about food facilities and food handlers, this assessment was

carried out to determine the status of restaurants at the Baraton Centers. Many students from the University of Eastern Africa, Baraton are day scholars and take most of their meals at these restaurants. Nonresident campus staff also take meals at the restaurants. Shop keepers, motorcyclists and the Baraton community are customers of the restaurants at the Baraton Center. The health of all these different groups of people is a concern to the investigators.

### **Objectives of the Study**

1. To assess food handling practices among food vendors in Baraton Center, Nandi County.
2. To identify the adequacy of food facilities in restaurants at Baraton Center, Nandi County.

### **Research Methodology**

#### **Study Site**

The study was conducted at the Baraton Center, found in Baraton Village. Baraton is a village located in Nandi County, Rift Valley Province, Western Kenya. It is located at coordinates 0.2540N 35.0810E. The county is generally known to produce prominent international runners. People of Baraton are engaged mainly in subsistence farming, livestock rearing and tea farming. Baraton has a cool wet climate with two rainy seasons; the long rains between March and June and the short rains between October and November. The rainfall varies between 1,200mm and 2,000 mm annually, with temperatures of between 150C and 250C. The Center is also visited by several tradesmen and community members on its market day, every Friday of the week.

#### **Sampling Techniques**

A questionnaire was used to collect data on food handling practices. A reliability test was done and Cronbach Alpha was 0.60. The independent variables on food handling practices that are related to food handlers and used in this study were head

cap, gloves, apron or coat and medical certificate. Variables related to the status of the restaurants included the presence of running water, ordinary or antibacte-

#### **Table 1**

rial soap, toilets, refrigerator, separate lavatories for males and females, separate lavatories for customers and insect trap. Other variables included the presence of sleeping rooms for workers, fence to ward off animals, separate slicing boards for chapatti, cabbage and meat, cooking food in the open environment, the acquisition of a municipal license and the presence of a hand sink.

### **Logistic Regression Analysis**

This is used when the dependent variable is dichotomous (binary) in nature. It is a predictive analysis and it is used to describe the relationship between one dependent binary variable and one or more nominal, ordinal or ratio-type independent variables.

### **Results**

#### **Demographic Information**

Majority of the respondents were females (53.3%). Majority of the respondents had primary Education (63.3%). Majority of the respondents earned a salary of Kshs 3,600 (76.7%). The marital status of majority of the respondents was single (63.3%).

Quality assessment of the food handlers was carried out by determining the percentage of individuals that possessed head cap, gloves when handling food, apron or medical certificate. The results showed that majority of the food vendors did not wear a head cap (73.3%), gloves (76.7%) or have a medical certificate (73.3%). Most of them wore aprons (96.7%) when at work (Table 1).

*Percentage of Individuals with Head Cap, Gloves, Apron and Medical Certificate*

	Percentage with	Percentage without
Head cap	26.7	73.3
Gloves	23.3	76.7
Apron	96.7	3.3
Medical Certificate	26.7	73.3

A quality assessment of restaurant was carried out to determine the percentage of the restaurants that possessed certain items or facilities in the premises (Table 2).

Table 2

*The Percentages of Restaurant With or Without Improved Facilities or Items*

	YES %	NO %
Potable water	10	90
Ordinary soap	100	0
Toilets	100	0
Refrigerator	20	80
Separate lavatories for M/F	20	80
Separate lavatories for customers	0	100
Insect trap	30	70
Sleeping rooms for workers	0	100
Fence to ward off animals	0	100
Slicing board for chapatti	70	30
Slicing board for cabbage	20	80
Slicing board for meat	20	80
Food cooked in the open environment	0	100
Municipal license	30	70
Hand sink	10	90

Table 3

*The Percentage of Restaurants with One, Two or No Chopping Boards*

No of Restaurants	No of chopping boards	Percentage
5	1	50

2	2	20
3	None	30

Table 4

*The Presence or Absence of Towels, Serviette or an Electric Hand Drying Device*

Item	No of Restaurants	Percentage
Towels	6	60
Serviette/hand tissue	2	20
Electric Drier	0	0
No. of Restaurants	2	20

Food temperature at the time of consumption is also very important in the transmission of food borne diseases because microorganisms multiply in food with time. The food was kept between 0 and 15 hours after preparation or cooking.

A food handler wearing rings can transfer germs to food through the rings. During this study, it was found that none of the food handlers wore hand rings.

**Redundant Variables**

All the respondents agreed that the restaurants did not have the following: no good floor drainage,

*Test for Model Coefficients*

running water, customer lavatories, sleeping rooms for workers, fencing protection against domestic and wild animals and training on food handling.

**Dependent variables**

The dependent variable is food handling practices and it is dichotomous in nature. The dependent variable was coded 0 for poor food handling practice and 1 for average food handling practice. The number of respondents that were examined was thirty (30), and the number of restaurants was ten (10).

Table 5

The step, block and model results are the same because stepwise logistic regression has not been used.

This test was used to determine statistical significance of the hypothesis.

**Tests for Model Coefficients**

	Chi Square	Degrees of Freedom	Significance
Step 1	14.696	15	0.474
Block	14.696	15	0.474
Model	14.696	15	0.474

## Discussion

According to Haileselassie Taddele, and Adhana (2012), the most important indicators that affect poor food safety include weak regulatory systems, economic factors, inadequate knowledge of foodborne diseases and their causes and unhygienic environment. It has also been noted that many food vendors are not trained professionally to handle food (Tessema et al., 2014). These factors were established by the present study. This study also established that many restaurants lacked running water facilities. It has been established that this contributes to the global burden of disease (Prüss-Üstün et. al., 2008). Inadequate preservation facility also contribute to unsafe food practices (Sanlier, 2009). According to this study, majority (80%) of the restaurants did not have refrigerators. Further, some food facilities reported that it takes up to 15 hours between cooking and consumption of the food they sold. This shows that both time and temperature are salient factors that may contribute to foodborne infections (Nieto-Montenegro, Brown, & Laborde 2008). According to World Health Organization (2010), the lack of adequate toilet facility is classified as unimproved or poor sanitation.

Factors associated with time and temperature can also influence food quality or the establishment of foodborne diseases. Foodborne illnesses have also been linked to improper storage of food. Majority (50%) of the restaurants had only one chopping board and this is an indication of possible cross contamination (Egan, 2007; Osaili et al., 2011). Thirty percent of the food facilities had obtained current municipal licenses and this was similar to a study by Saidatul and Hayati (2013), in which 27% of the food facilities did not have updated license to run their restaurants. Some studies have shown that majority (71.4%) of food handlers undergo regular medical checkup, which is contrary to the present study that shows that only few (26.7%) had gone for medical checkup and possessed medical certificate (Egan, 2007). Even though several food vendors at Baraton Center provide ordinary soap or detergent for themselves and customers to clean their hands, none used antibacterial soap or hand sanitizers for disinfections of the hands.

None of the food facilities had automated hand drier for drying the hands, but majority used hand towels indicating an unimproved sanitation practice. It is evident from the results that the model coefficients are not significant. The food handling practices does not meet the required standards. This finding was not consistent with studies in Malaysia and Nigeria, which had safety food handling practices of 54.7% and 54.7% (Havelaar et al., 2015) and Ethiopia (Tessema et al., 2014) where out of 406 food handlers working in food and drink establishments of 213 (52.5%) had good food handling practices.

## Conclusion

Majority of the restaurants did not have potable water, no separate lavatories for customers, inadequate processing and preservation facilities. Majority of the respondents had not obtained permission from the authorities to operate their businesses. However, all of them had common toilets and used ordinary soap but did not use antibacterial soap. Deficiencies were noted amongst the food handlers as well as restaurant facilities which impairs the quality of food served in these restaurants. This in turn can be a major risk factor in transmission of food borne diseases such as typhoid, listeriosis, among others. Lack of separate toilet for workers and customers in this study proved that there is poor sanitation. Generally, it can be concluded that the restaurant owners and workers need to be educated on food hygiene and safety. The government needs to enforce regular inspection of food facilities in rural areas like Baraton Center.

## Recommendations

Policy makers, development partners, and the general population, should act to improve the current sanitation situation, especially in developing countries. The municipal council should also encourage people in poorer areas to start with the most simple types of low - cost sanitation facilities and then to progress over time towards higher specification and cost options. Explore some of the best possible low cost alternative technologies helpful in rural set up. To research on common food borne diseases that are prevalent in this community. Encourage the food handlers and the

restaurant owners to undertake training on food handling practices and preservation including the requisite facilities.

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