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FOOD HYGIENE KNOWLEDGE, ATTITUDES AND PRACTICES AMONGST FOOD HANDLERS IN SELECTED HOTELS AND RESTAURANTS IN THIKA TOWN, KENYA

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Abstract: The aim of this study was to investigate food hygiene knowledge, attitude and practice amongst food handlers' in selected hotels and restaurants in Thika Town, Kenya. A cross sectional survey design was adopted. The study targeted population 470 food handlers from which 216 respondents were sampled for study. Simple random sampling was used during data collection, while, structured questionnaires were used to collect data. The questionnaire for data collection was validated through a pretest study and its reliability was measured using the Cronbach‟s Alpha test. The responses were coded and analyzed using quantitative methods including means, percentages, standard deviations, frequency distributions. A total of 184 questionnaires were found fit and complete for data analysis. Generally, the food handler's knowledge was high with a mean percentage score of positive answers of (81.1%±7.3%). With regards to attitudes the food handlers exhibited positive attitude towards food hygiene with an overall mean of 3.6±0.5 out total 5. Overall, the food handlers had good practices in food hygiene with a mean percentage score of 86.3%±8.3%. However, a considerable number of food handlers (27.5%) exhibited unhygienic food practices. The public health authorities should do thorough checks to ensure that all food handlers hold valid medical certificates. Restaurant and hotel managers should ensure that all food handlers are free from illness and those ill should not be allowed to handle food. Similar studies need to be carried out among food handlers operating in the many fast food restaurants and food kiosks around the country.

Index terms*:* Food hygiene, knowledge, knowledge, attitude, practices, food handlers, food borne illnesses

1.0. INTRODUCTION

Lack of adequate knowledge and inappropriate practices by food handlers are some of the major contributing factors towards the cause and spread of foodborne diseases. Foodborne diseases are one of the greatest prevalent complications in the modern day century (Wheelock, 2006). Foodborne outbreaks is a major issue of health concern both in developed and under developed countries counting Kenya as well. Developing nations are experiencing prevailing pitiable food hygiene practices, poor sanitation practices, weak regulatory bodies and systems, inadequate food related safety laws, inadequate financial resources aimed at safer food equipment, inadequate skills and education awareness among food handlers (Githiri, Kimiywe & Okemo, 2013).

Developed nations register up to 30% of microbial foodborne illnesses while in developing questions cases are higher (WHO, 2005). In the least developed nations, food borne infections occur daily and they are ascribed to consumption of food which is assumed to be contaminated with parasites, bacteria and viruses in (WHO, 2008). According to (WHO, 2008) cases of food borne diseases occur daily throughout the world, from the most to the least developed countries and they are attributed to consumption of contaminated food with a wide variety of bacteria, parasites and viruses.

Studies on foodborne diseases have revealed that nearly all case are attributed to failure to strictly observe standards while doing food preparation and processing, or either during the cooking of foods, storage or retailing (Tomohide, 2010). While Motarjemi and Mortimore, confirmed that foodborne illnesses are as results of malpractices in processes of preparation in hotels, restaurants, homes and places where it is sold for human consumption. Hence, inadequate awareness among food handlers in those premises poses substantial health risks to the public.

There has been alarming cases of food contamination resulting to hospitalization and deaths in Kenya, (Wanzala, 2019). In 2017, two top hotels in Nairobi were closed indefinitely following an outbreak of cholera (Wanzala, 2019). A study carried out by Kenya Medical Research Institude (KEMRI) showed that up to a third of food handlers seeking medical certificates carried highly drug-resistent germs. The food handlers had gone ahead to secure jobs in road side cafeterias and high end city hotels (Gathura, 2017). This has cast doubt on the safety and handling of food in food establishments around the country.

Onyango, and Cheloti-Mapelu, (2019) in Kenya assessed food handlers' knowledge on Food Safety Management. The results revealed that food handlers had enough knowledge on many aspects of food safety management. But gaps on knowledge regarding contamination causes, temperature control among other areas was revealed. The study proposed in-depth orientation plan, FSM training targeting every food handler across job levels. Inadequate knowledge, negative attitudes and pitiable hygiene practices in relation to foods are some of the factors contributing to foodborne illnesses (Antonio, Magdevis-Yanet, Guiomar, Fernando, Elena, & Rosa, 2016). The current study is therefore, aimed at investigating the food hygiene knowledge, attitudes and practices amongst food handlers in selected hotels and restaurants in Thika town, Kenya. The following were the study objectives;

i. To establish food hygiene knowledge amongst food handlers in selected hotels and restaurants in Thika town, Kenya.
ii. To determine food hygiene attitudes among food handlers in selected hotels and restaurants in Thika town, Kenya.
iii. To assess food hygiene practices amongst food handlers in selected hotels and restaurants in Thika town, Kenya.

2.0. MATERIALS AND METHODS

The study was carried out in Thika town, Kenya. The study adopted a cross-sectional survey design. Target population for the study 340 food handlers from 20 randomly selected hotels and restaurants were chosen to participate in the study. The food handler handlers comprised of purchasing clerks, store keepers, chefs, cooks, assistant cooks, waiter, food and beverage heads, and bar and restaurants tenders. Sample size of 184 was determined using Yamane's formula. Data were collected by use structured questionnaires that were researcher administered. The questionnaire for data collection was adopted and modified from, (Sharif, Obaidat, & Al-Dalalah, 2013). To test the reliability of the constructs under study Cronbach's alpha reliability coefficient test of 0.74 was realized. For attitude questions a 5 point Likert scale ranging from 0 to 5 was used where, (5=strongly agreed, 4=agree, 3=undecided, 2=disagree, 1=strongly disagreed). For knowledge and practice questions a two point was used (correct response=1 and incorrect=0) then the total responses were transformed to percentage score to simplify the presentation and interpretation of the results. Data was analyzed with the help of statistical package for social sciences (IBM SPSS) version 22 and then presented in descriptive statistics in terms of percentages, tables and figures.

3.0. FINDINGS AND DISCUSSION

3.1. Food Hygiene Knowledge amongst Food Handlers

Table 1: Food handler's response to knowledge questions on food hygiene

Question	Positive answer (%)	Negative answer (%)
1. Hand washing is important to protect others from disease causing organisms	91.3	8.7
2. Insects such as rats and cockroaches can cause food contamination after cooking	82.6	17.4
3. Drinking water can be contaminated when the water gets into contact with sewer water	80	20
4. Cholera can be caused by drinking contaminated water and food	93.6	6.4
5. Left- over food have to be adequately reheated to prevent food poisoning	76.1	23.9
6. Food handlers should undergo training on food hygiene and safety to prevent disease outbreak in food establishments	57	43
7. All pathogens likely to cause food borne illness can be seen by the eye	84	16
8. Food poisoning is a serious disease that can result to hospitalization and even death	74.9	25.1
9. Eating unwashed fruits can increase the risk of food poisoning	78.5	21.5
10. Keeping food at refrigerator temperature decreases multiplication of harmful bacteria	90	10
11. A healthy looking food handler is not likely to transmit foodborne illness	76.8	23.2
12. A food handler should wash their hands after handling money	88	12

Table 1 shows response of food handlers to knowledge questions on food hygiene. Generally, the food handler's knowledge was high with a mean percentage score of positive answers of (81.1%±7.3%). They demonstrated high knowledge in the categories of hand washing, food borne diseases, food storage temperatures and food contamination sources. Similar findings by (Sani, & Siow, 2014), in Malaysia revealed that respondents possessed knowledge about foodborne diseases, personal hygiene and temperature regulations for food. Another study by (Sharif, Al-Dalalaha & Obaidat, (2013) in Jordan revealed high percentage scores on knowledge amongst food handlers. However, this contradicts the findings of a study carried out in Brazil that sought to assess the level of attitudes, knowledge, and practices amongst food handlers. The results revealed that 92.2% of the food handlers had inadequate knowledge (Soares, Cerqueira, Carvalho, Almeida & Nunes, 2012).

3.2. Food Hygiene Attitudes amongst Food Handlers

Table 2: Food handler's response to food hygiene attitude questions

Attitude	Mean N=184
1. Food handlers can be a source of food poisoning	4.02
2. Food handlers should was their hands regularly	4.18
3. A food handlers requires a medical certificate before selling food	3.7
4. It is important to serve customers with safe drinking water	4.0
5. Raw vegetables and meat should be cut on the same cutting board	3.45
6. Wiping fruits with a paper towel makes them safe for consumption	3.5
7. Uncovered hair can contaminate food with food borne pathogens	2.8
8. It is important for a food handler to train on food hygiene and safety	3.3
9. Food handlers should take a medical exam every six months	3.0
10. Long fingernails may transmit foodborne pathogens	3.6
Overall mean	**3.6**

Table 2 shows the level of attitudes of food handlers towards food hygiene. Most of the food handlers felt that they can become the source of food poisoning with a mean attitude score of 4.02 while majority (mean: 4.18) felt that it is important to wash their hands regularly. This findings supports those of (Al-Shabib, Mosilhey, & Husain, 2016) who used a cross sectional study to evaluate on 87 food handlers knowledge and attitude and revealed that food handlers had favorable attitudes on food hygiene. The findings are further supported by (Shuvo, (2018) who carried out a cross-sectional study to evaluate the level of knowledge levels, attitudes and extent of practices amongst food handlers on hygiene and sanitation and revealed positive attitude and noble practices on food hygiene

3.3. Food Hygiene Practices amongst Food Handlers

Table 3: Food handler's response to food hygiene practices questions

Question	Hygienic practice %	Unhygienic practice %
1. Do you have a valid medical exam certificate	82	18
2. Do you wash your hands with soap and water before handling food	93.6	6.4
3. Do you wash your hands with soap and water after visiting the toilet	88.2	11.8
4. Do you work when you have a cold	72.5	27.5
5. Do you handle food when sick with diarrhea	73.1	26.9
6. Do you boil or treat water before serving the customers	87	13
7. Do you wash cutting boards after using between food items	94	6
8. Do you separate raw food from cooked food?	89.3	10.7
9. Do you store left over food in the refrigerator?	97	3
10. Do you cover your head when handling food?	67.7	32.3
11. Do you check if meat if fully cooked	94.9	5.1
12. Do you wash fruits and vegetables with tap water	96.4	3.6

Table 4 below demonstrates the food hygiene practices of food handlers in hotels and restaurants in Thika town. Overall, the food handlers had good practices in food hygiene with a mean percentage score of 86.3%±8.3%. This supports findings of (Shuvo, 2018), who carried out a cross-sectional study to evaluate the level of knowledge levels, attitudes and extent of practices amongst food handlers on hygiene and sanitation and revealed noble practices on food hygiene. Rebouças, Santiago, Martins, Menezes, Araújo & De-Castro-Almeida, (2017), also found similar results in Brazil in a study that sought to establish the level of knowledge, attitudes and the extent of practices among food handlers; knowledge and extent of practices among head chefs together with managers in hotels' and restaurants. The results revealed that food handlers had appropriate practices on personal hygiene.

However, in this current study a considerate number of food handlers exhibited unhygienic food practices in various aspects where 27.5% went to work when sick with a cold while 32.3% did not cover their head when handling food. This finding conforms to a study carried out in Ghana that sought to assess practices of organisational food handlers in respect to hygienic practices recommended for food and general safety. The results revealed that institutional food-handlers have reasonable food safety knowledge but that is not reflected in strict hygienic practices when processing and managing food products (Akabanda, Owusu-Kwarteng & Hlortsi, 2017).

4.0. CONCLUSION AND RECOMMENDATIONS

The findings of this study demonstrated that the food handler's knowledge on food hygiene was adequate. The results illustrated that most of the food handlers had positive attitudes and practiced good food hygiene. However, a significant number of food handlers' unhygienic food hygiene practices in certain aspects where 27.5 % and 26.9 % of them reported to handle food when they have a cold and sick with diarrhea respectively. These practices increase the risk of transmitting foodborne pathogens, such as *E. coli* and non-typhoidal *Salmonella* .As a result, public health authorities and local governments ought to ensure that food handlers in food establishments follow the recommended food hygiene guidelines. In addition, the authorities should also do thorough checks to ensure that all food handlers hold valid medical certificates. Restaurant and hotel managers should ensure that all food handlers are free from illness and those ill should not be allowed to handle food. Similar studies need to be carried out among food handlers operating in the many fast food restaurants and food kiosks around the country

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